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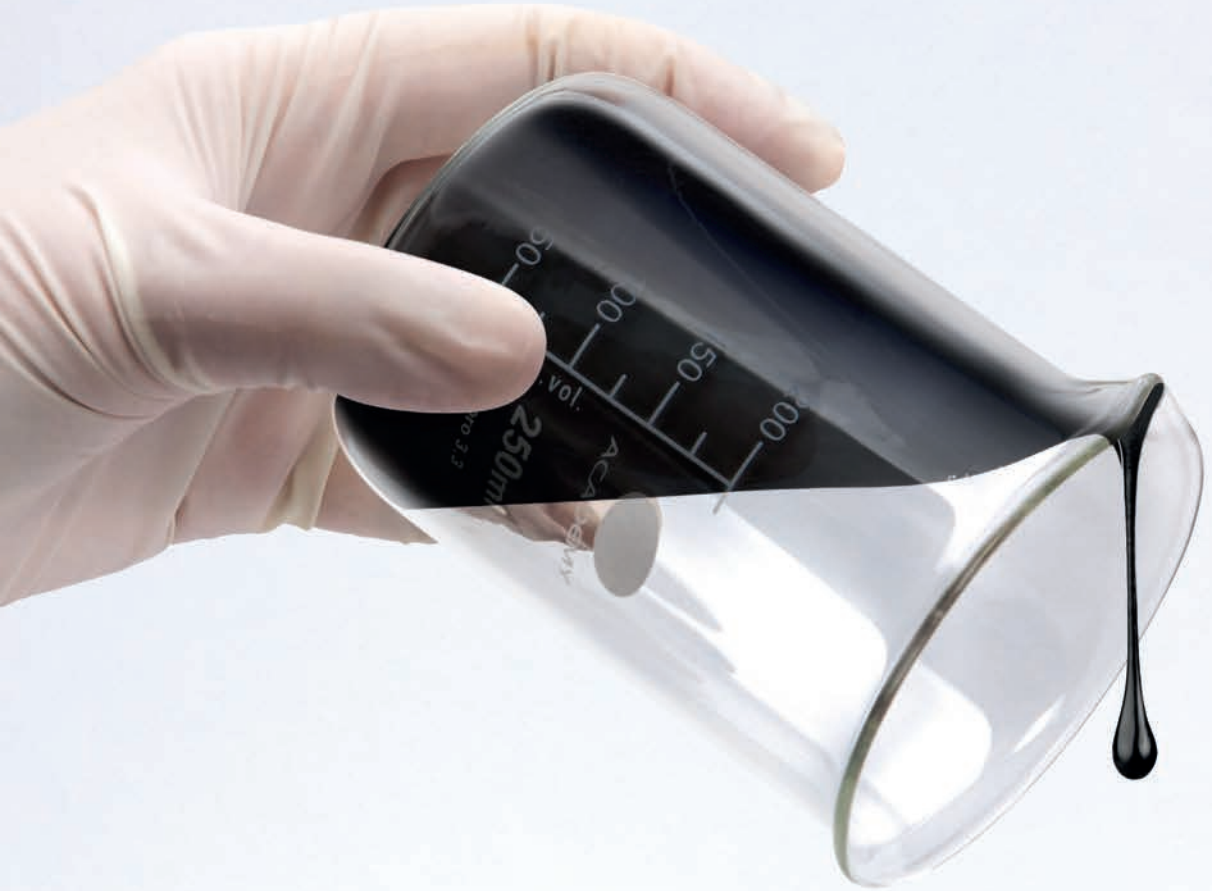
▸ **Interview: Philip Booth**
The free market actuary on public presence, principles and faith

▸ **Modelling**
Mastering the correlation matrix

▸ **Pensions**
A rebalancing strategy to reduce risk

▸ **Soapbox**
What now for Solvency II?



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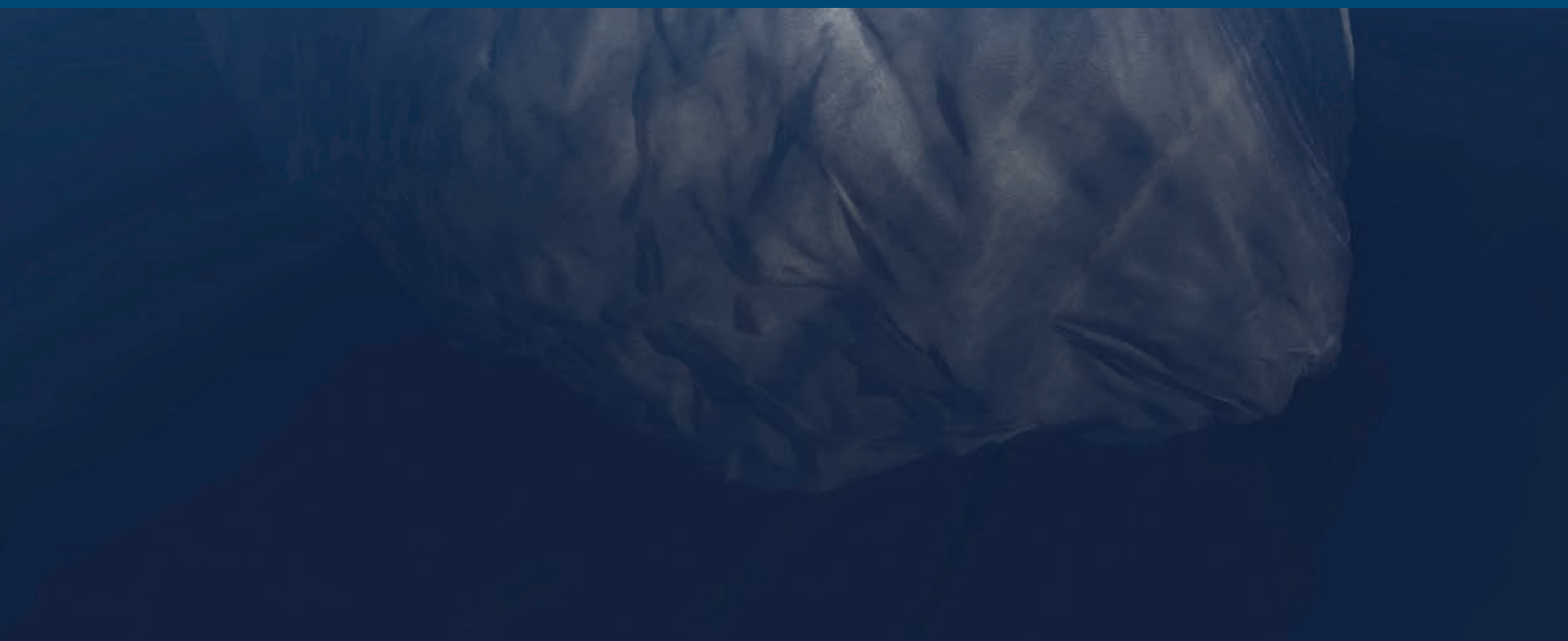

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The authors of the 'Carbon bubble' article win a £50 book token, courtesy of the Staple Inn Actuarial Society

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DEEPAK JOBANPUTRA

Opinion

Solving complex and challenging issues is part of an actuary's mindset, says Deepak Jobanputra

Mission impossible?

An esteemed ex-colleague and friend of mine often remarks that a 'good' actuary will always start a response to a question with the answer "it depends". He also happens to be a non-actuary who is very fond of actuarial habits and so, rather than it being a 'jab' at actuaries, I have always interpreted it positively. This statement of "it depends" conveys something very important when considered closely. It recognises the complexity of the issues that we are often trying to solve, and the number of potential outcomes based on a range of assumptions and other factors. There are plentiful examples of this notion to be found within *The Actuary*.

This month our lead article on the carbon bubble considers the issue that a global society faces in balancing the challenges posed through limiting the use of fossil fuels against the risk of a further financial crisis. This topic is likely to take centre-stage at prominent political and economic summits in future years. Actuaries have a great opportunity to take a leading role in shaping the future strategy in this area.

'It can be difficult to argue against the foundation of regulation as its intention is to bring order to markets'

We also have an interview with the highly respected actuary and economist, Philip Booth. Philip holds strong opinions and these are presented candidly in the article. I am intrigued with the discussions on free markets and the role of regulation. It can be difficult to argue against the foundation of regulation as its intention is to bring order to markets and to provide protection against abuse for key stakeholders. There is, however, a cost to regulation. I hope that this cost-benefit consideration creates some discussion and I would love to hear from you on this topic. It is a debate that clearly does not have a simple solution and one that has a high probability of featuring the infamous "it depends".

Extending this discourse on regulation, our soapbox this month dares to revisit the topic of Solvency II citing the unfortunate uncertainty of timing – driven clearly by the complexity of such a huge task. As an optimist, I do hope that regulators are able to agree on a workable solution with the insurance industry in the not too distant future.

Deepak Jobanputra
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David Hare is the president of the Institute and Faculty of Actuaries

DAVID HARE

A question of pension relevance

David Hare outlines the IFoA's work in the pensions space, including defined ambition, tax treatment and defined contribution

A few weeks ago, I had the pleasure of attending a lunch for the all-party parliamentary group (APPG) on pensions in the House of Commons. Assembled were some of the most prominent authorities on pensions and influential policymakers. The discussions were illuminating, and it is reassuring to know that the Institute and Faculty of Actuaries (IFoA) was part of them.

I found it particularly interesting to hear about the work the Association of Consulting Actuaries (ACA) has been doing to support the government's defined ambition pension proposals, and this led me to reflect on some of the work that members of the IFoA undertook last year on the guaranteed aspect of defined ambition.

A great deal of research is carried out by the IFoA in the pensions space, either directly by members or through sponsorship. One example is the recent research by the Pensions Policy Institute (PPI) on the effectiveness of tax as a pensions saving incentive, more about which later. Many thanks to those involved in this research. It is so important because of the way the pensions landscape is changing and the implications that has for the role of the actuary within that landscape.

In October, we will reach the first anniversary of auto-enrolment, which, to date, appears to be running successfully, although it could be argued that its greatest challenges still lie ahead.

Just a few months ago in this magazine, pensions minister Steve Webb questioned the role of actuaries in the pensions landscape of the future (*The Pensions Revolutionary, The Actuary,* June 2013). Certainly, the traditional image of the actuary is within a defined benefit (DB) scheme, but the world has moved on and so have our members.

Today, a great many of our members, in the UK and overseas, work in pensions but not in DB, reflecting the value of the actuarial skill set when applied to pensions of any description. This reality is supported by the changes made in our qualifications, such as enterprise risk management (ST9), and there will be changes made to the pensions and other benefits (SA4) syllabus soon.

The IFoA is working closely with the Pensions Regulator as it looks at gaining a sense of what a good defined contribution (DC) member outcome should look like – a challenging question with important ramifications. There is a new DC working party (reporting to the Pensions Board) which is tasked to respond to consultations, examine the issues and undertake research in the DC space.

This working party is already establishing member-led research working parties looking at bond yields, how best to provide pension information and how to design a pension around the idea of defined ambition and inflation – if you are interested in being involved in any of these projects, please email Debbie Atkins, head of volunteer engagement, at *debbie.atkins@actuaries.org.uk*.

Returning to the PPI's research on the tax treatment of UK pensions, this research has opened an interesting debate – one that will continue to roll on and one where I am keen that the IFoA continues to play a part in informing the debate.

> "The PPI's research on the tax treatment of UK pensions has opened an interesting debate – one that will continue to roll on and where I'd like to hear more from you"

If you missed the PPI's research, the report is available on the website, *www.actuaries.org.uk*. To summarise: it suggested that not only is the present tax-neutral system for UK pensions failing to act as an incentive for saving but it is also unevenly distributing the benefits of this tax treatment to higher-rate tax payers. The research considered a number of alternatives, including a 30% flat rate and a cap of £36,000 on the tax-free lump sum of up to 25% of your pension savings that is presently available. The research was widely reported in the media, and calls for a fresh look at the present system were made by a consortium of 40 Conservative MPs, the ABI, the TUC and Age UK.

Our view is that this is a complex area and that simplifying pensions should be beneficial for all concerned. The consideration of tax as an incentive is just one of several options available to policymakers, albeit one that offers them food for thought, and there are a number of other factors that should also be considered, including affordability, communication and the role of the employer.

I am interested in hearing members' views, so contact us via the website and send me your thoughts on the paper. I look forward to reading them, with a view to establishing further research by the IFoA to inform what is set to be an ongoing debate. A

SIMON SHEAF

What now for Solvency II?

Simon Sheaf asks whether the positive elements of Solvency II can be retrieved from the disastrous implementation

Solvency II looks like an object lesson in how not to implement a regulatory regime. But where did it all go wrong? One answer is in the complexity of the implementation. Looking back at the Solvency II directive, much of it is entirely reasonable but has been buried under an avalanche of consultation papers and implementation measures so that many of the positive elements have been lost or diluted. This view is supported by a survey undertaken by Grant Thornton late last year, in which 99% of respondents agreed that the principles of Solvency II were good. However, 82% thought that those principles had been ruined by the implementation.

The other major problem is the continuing delays. It is hard to believe that, if the original timetable had been adhered to, Solvency II would have been in force since last autumn. As it is, the new regime is clearly not going to come into force until 1 January 2016 at the earliest, and many commentators think that 2017 or even 2018 are more likely dates.

The latest delays have resulted in many insurers putting their Solvency II preparations on hold. They are unlikely to re-engage until a robust and believable timetable is in place.

The delays have arisen because of the difficulty in reaching an agreement between the diverse members of the EU – all of which have different priorities. This has created particular challenges in agreeing Pillar 1, which specifies capital requirements under Solvency II.

One of the final sticking points relates to the treatment of long-term guarantees. The European Insurance and Occupational Pensions Authority (EIOPA) issued a report setting out its findings on this issue in June. However, the response has not been universally positive. In particular, the French and German insurance associations have significant reservations.

A key next step in the tortuous path to Solvency II is the draft Omnibus II directive. Until this is passed, none of the implementing measures that will tell insurers and regulators exactly how to implement Solvency II can be finalised. This means that no definitive timetable for the new regime can be put in place until Omnibus II is passed.

The vote on Omnibus II has been delayed numerous times and is now scheduled for 22 October 2013. Any further significant delay will seriously jeopardise the 1 January 2016 implementation date.

The rather unenthusiastic reception given to EIOPA's suggestions on long-term guarantees raises serious concerns as to how quickly a pan-European agreement on this issue will be reached. Indeed, some might argue that it raises the question as to whether agreement will ever be reached. Even if this fear is unfounded, the 22 October date for the vote and, therefore, the 1 January 2016 date for implementation, look to be under increasing pressure.

As we see it, there are three options if the Omnibus II vote is further delayed.

The first is to delay Solvency II yet again to allow more time for agreement to be reached. But how many times can you delay the regime without killing it altogether? There is already a small but growing minority of commentators who think that Solvency II may never happen and this view is likely to swell with lack of action. Could the next delay be the straw that breaks the camel's back?

The second option is to implement Pillars 2 and 3 – which deal with the governance and risk management and the reporting requirements – ahead of Pillar 1. Such an approach has its attractions since there is far less controversy over Pillars 2 and 3. However, Pillar 1 is the core of Solvency II. The original motivation was to ensure that capital requirements for insurers were consistent across Europe, and I would question the value of introducing Solvency II without this benefit.

The third option is to abandon Solvency II. As mentioned above, there is a growing minority who believe this will be the outcome. However, I tend to be more bullish and believe that some form of Solvency II will eventually be implemented. If for no other reason, it is hard to envisage EIOPA informing the industry, which has spent billions on preparations, that all their time, effort and money has been wasted.

> "Despite its flaws, Solvency II will result in European insurers being better run. It would be a great shame to lose that"

Despite its flaws, there is a lot of good stuff in Solvency II that will result in European insurers being better run and better capitalised. It would be a great shame to lose that as a result of either over-zealous implementation or a stalemate between competing self interests in Europe.

***Simon Sheaf** is the general insurance actuarial practice leader at Grant Thornton UK LLP. He advises insurers on a range of issues, including Solvency II, capital modelling, reserving, pricing, and insurance business transfers under Part VII of the Financial Services and Markets Act 2000*

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Upfront

Opinion
CEO's comment

Derek Cribb considers the larger picture ahead of the IFoA council's strategy discussions

The big questions

Derek Cribb is the chief executive of the Institute and Faculty of Actuaries

The IFoA hit a milestone in August and now has over 25,000 members worldwide. It is heartening to see that the high-quality offering the IFoA provides to its members is attractive, and that even in these challenging economic times the appeal of an actuarial career has not dwindled.

The make-up of our membership is evolving, particularly so in recent years. For example, there has been rapid growth in members specialising in general insurance, while, in pensions, growth has been slower. Expansion in UK membership remains steady, but the picture is more complex internationally. The effect of the South African and Australian professional bodies on our membership numbers in these regions is felt as their domestic growth continues. However, our fellowship numbers in China, south-east Asia and continental Europe are growing apace, and student numbers in south Asia, Africa and the Middle East are positively booming.

To maintain the quality and relevance of the IFoA, we must consider the issues affecting our members at a strategic level. For example, how can we support our members in practice areas that are showing less growth? What competencies will our members need in the future to compete effectively with other professionals in areas where we are seeing sharp growth? Is the structure and content of our exams and continuing professional development evolving in line with the skills and knowledge that employers want? Do we need to change what we do in order that we continue to strike the right balance between supporting our members and serving the public interest?

Developing and reviewing strategy is one of the most important responsibilities of the IFoA's Council. At the next meeting on 7 October, we will be considering some of the high-level issues affecting the actuarial profession. Actuaries are known for their forward thinking and ability to predict outcomes: harnessing these skills and applying them to the profession itself will ensure a prosperous future for the IFoA and its members.

› If you wish to feed any views into the next Council meeting, please seek out a Council member or email me at **derek.cribb@actuaries.org.uk**

ACCESS THE IFoA'S STRATEGY

Quality assurance

The IFoA wishes to invite expressions of interest from experienced and qualified organisations for the provision of monitoring services for the IFoA's quality assurance scheme.

The IFoA does not regulate firms and other employers of actuaries directly, but recognises the critical importance of the working environment in which actuaries operate in promoting quality. The IFoA is therefore intending to introduce a quality assurance scheme for organisations that employ or consist of one or more actuaries.

In order to be part of the scheme, organisations will be required to demonstrate the application of policies and procedures in the following areas: quality assurance (including peer review); engagement and communication with users of actuarial work; conflicts of interest; the development, training and support of IFoA members; whistleblowing; handling of complaints about professional matters regarding members of the IFoA or actuarial work; and professional indemnity insurance.

It is currently proposed that the monitoring aspects of the quality assurance scheme will be contracted to an external organisation. It is anticipated that firms will be monitored periodically and that this will involve: a paper review of the organisation's policies in the areas outlined above; and an organisation visit to discuss how the policies work in practice with the individuals responsible for the policies, as well as those involved in implementing the policies.

The quality assurance scheme will initially be restricted to organisations or parts of a business that are based in the UK: however the geographic scope may be expanded in due course.

It is intended that the IFoA will launch a pilot scheme in January 2014, which will provide an opportunity to refine the regime in advance of the full launch in mid-2014.

› For further information or to express your firm's interest by 16 September, call 020 7632 2167 or email **procurementservices@actuaries.org.uk**

Response to flood risk

As part of its ongoing contribution to public consultations, the IFoA responded in August to the consultation by the Department for Environment, Food and Rural Affairs (Defra), 'Securing the future availability and affordability of home insurance in areas of flood risk'.

As flood insurance is included as standard in most building and contents policies, and mortgage lenders tend to require it, the government has sought to find ways to provide affordable cover, particularly to those whose property lies in an area of increased flood risk.

The government has proposed to move ahead with the establishment of Flood Re, the Association of British Insurers' proposed reinsurance pool for high-risk properties. The purpose of this consultation was to consider how provision could be made more widely available and what practical steps needed to be taken to introduce Flood Re.

The IFoA does not lobby for any particular position in its response but seeks to provide comment on technical issues related to implementing policy decisions. It highlights a number of areas requiring further attention for the government to successfully achieve its policy intention.

› The full response and all other responses submitted by IFoA can be read at **bit.ly/LCkwSr**

Careers: become an actuary

Jenni Hughes (*right*), careers marketing leader, gives an update on her work and details the opportunities for members to volunteer to raise awareness of the profession and the work that actuaries do

What does your role involve?

In August, the IFoA reached 25,000+ members. Out of all the new members who join the IFoA, each year around 30% of those come from the universities to which we actively promote. In my role, I promote the profession and the IFoA to school and university students as well as teachers, parents and career changers. I am helped by over 200 career ambassadors – active volunteers at all stages of qualification.

What activities have you undertaken?

This year, I have been working on new careers material, including *A Guide To Becoming An Actuary,* the first go-to guide published by the IFoA. The brochure is filled with articles, case studies, hot topics and, of course, qualification information. A photo shoot was organised with members of the IFoA, so the brochure will be engaging in terms of content and the look and feel will be unique. A huge thank you to all those who have written content, attended a photo shoot and helped me with the editing.

My work focuses not only on the UK but also internationally. This year, I have worked very closely with societies in Africa, Europe, China and the Middle East to raise the profile of the IFoA and the work that actuaries do. If you have any international opportunities that you would like to publicise then this could be arranged in our international newsletters.

What's next?

This year, we are attending 16 university events around the UK and hosting the Actuarial Careers Reception in London. These are fantastic opportunities for potential students to come and meet the IFoA and working actuaries to understand more about the career and the work that they may be involved with in the future. Visit *bit.ly/QiJMhZ* to see the full list of university career fairs.

How else can members get involved?

Well, you could become a career ambassador. The role of a career ambassador is to promote the IFoA by helping to advise those interested in the career path about the role of an actuary and to give them informal and personal advice about their route in. Our ambassadors are at many different stages in their actuarial qualification, from newly employed graduates to senior actuaries. They offer a huge variety of insight into a dynamic and ever-changing career and professional body.

› To contact Jenni, phone +44 (0)20 7632 2137 or email **jenni.hughes@actuaries.org.uk**

ACTUARIES' CODE TO BE AMENDED

Changes to the Actuaries' Code are due to come into force from 1 October 2013.

On its introduction in 2009, the code became the touchstone of the IFoA's public interest function and of its commitment to promoting the highest of ethical standards in its members. It has been well received by members and the feedback received by the IFoA suggests that it is viewed in a largely positive light.

In order to ensure that the code remains relevant and reflects any changes within the profession or its regulatory landscape, provision was made for the code to be reviewed within a certain period of time. The recent changes follow such a review of the code.

The review was described by the Actuaries' Code Review Working Party as having a 'light touch'. This reflects the general view that the code is a good example of a practical, principles-based document and that changes should not be made unless there is good reason.

Following their review, the working party made a number of recommendations for change, which aimed to:
(1) amend the code to reflect the merged body of the IFoA and the replacement of the Board for Actuarial Standards with the Financial Reporting Council (FRC);
(2) bring honorary fellows within its scope;
(3) amend the impartiality provisions to reflect the conflicts of interest guidance published by the IFoA; and
(4) introduce provisions to reflect the ethical code of the International Actuarial Association (IAA) in relation to actuaries taking responsibility for their own work.

The proposals were consulted upon in March and April and the results published on the IFoA's website. There were around 270 responses to the consultation and a large majority of respondents agreed with the proposed changes. There was specific engagement with relevant stakeholders including the IAA and the FRC.

The changes were approved by the Professional Regulation Executive Committee (now the Regulation Board) and will come into force on 1 October 2013, which is exactly four years after the original code came into effect. Additional resource material to assist with understanding the new changes will be added to the IFoA's website in the course of the next couple of months.

It is anticipated that a more substantial, review of the code will take place in 2015.

ALAMY

NEWS IN BRIEF

IFoA autumn lecture: presentation by Robert Black

7 October, Edinburgh

We are delighted to welcome Robert Black, former auditor general in Scotland, as this year's guest speaker. Black will share his thoughts on the challenges for public services and the strengths of policies adopted in both England and Scotland.

We are also pleased to be able to present John Hibbert with his honorary fellowship.

Coming to GIRO? Why not come along a day early and attend the autumn lecture too?

› For details and to book, visit **bit.ly/1d6emW3**

Governance structure – committees' name change

As part of a second-phase governance review, the Council of the IFoA has approved changes to the names of many of the main committees that report to the council and the management board.

› Details of the names and reporting lines can be found at **bit.ly/1cAQgVG**

New online content to enhance professional skills

You can now access case-study-based video clips and online learning materials developed to meet the new professional skills training requirements for experienced members. The case studies deal with ethical dilemmas that can arise at work or in your personal life. We would welcome feedback on this new approach to professional skills training.

› Email your comments to **professional.skills@actuaries.org.uk**

› Access the content at **bit.ly/19huVvO**

Practising Certificates Scheme

Members are reminded that changes to the Practising Certificates Scheme come into effect from 1 September 2013.

› View changes at **bit.ly/16jpspu**

New Council members

Benny Higgins, Kathryn Morgan, Fiona Morrison, Carole Ryden, Edwin Sheaf, Nick Silver and Colin Wilson were recently elected to Council. Wendy Hawes was also elected but sadly passed away in July. Council has co-opted Andrew Rear. Election details are on the website (**bit.ly/12giLko**) as are biographical details of Council members (**bit.ly/RXoDs6**).

2013 presidential team

With effect from the AGM at the end of June 2013, David Hare started his 12 months as president, with Nick Salter as the new president-elect and Philip Scott becoming immediate past-president.

Developments in insurance accounting

Two developments in insurance accounting mean it will be a busy time for members of the Financial Reporting Group of the IFoA this autumn.

Firstly, the International Accounting Standards Board (IASB) has released its proposals for improvements to Insurance Contract Accounting. This will apply to those insurers who have adopted international financial reporting standards (IFRS), including all listed insurers. This follows an earlier exposure draft in 2010 and a discussion paper in 2007.

The proposals represent a very significant change for insurers, introducing for the first time a comprehensive accounting standard for insurance contracts. The IASB proposes that insurance contracts are measured using a market consistent current value approach. The measurement has two components:

- a measurement of the amount, timing and uncertainty of expected future contract cash fulfilment flows; and
- a contractual service margin representing a current estimate of expected profitability.

The proposals include a number of matters that are likely to be controversial, including: (i) a proposal to recognise in the P&L account interest expense determined using the discount rate that applied at the date the contract was initially recognised and recognising in other comprehensive income (OCI) the difference between the contract liability measured at current discount rates and the discount rate at initial recognition; (ii) premium revenue should be presented based on an 'earned' basis, and both premiums and incurred claims should exclude investment components; (iii) with-profits and unit-linked business will be subject to a separate 'mirroring' approach that will require cashflows to be split between those varying directly with asset returns, cashflows varying indirectly with asset returns and fixed cashflows.

If adopted as proposed, then the effect on insurers' business models, products and accounting systems might potentially be as significant as that of Solvency II.

An open forum at Staple Inn, London, on 12 September will provide an opportunity for members to discuss the issues raised by the new exposure draft and provide input to the IFoA's response.

Secondly, the Financial Reporting Council (FRC) is consulting on some more immediate changes to accounting for insurers within the UK generally accepted accounting principles (GAAP) regime (see *bit.ly/19L8php*). This extends the new GAAP regime laid out in FRS 100 – 102 to insurance, consolidating existing financial reporting requirements, and will become effective from 1 January 2015. The requirements are based on the current requirements of IASB's IFRS 4 Insurance Contracts, the existing requirements of FRS 27 Life Assurance and elements of the Association of British Insurers' Statement of Recommended Practice on Accounting for Insurance Business. The single largest change though is probably already effected by FRS 102, which will require insurers to differentiate between insurance and investment contracts.

The IFoA expects to prepare a response for the FRC by their deadline of 31 October 2013.

IFoA 2013/2014 subscriptions

The IFoA annual subscriptions become due on 1 October and can be paid up until 31 October without a surcharge.

A subscription notice will be posted to members during the second week in August. However, you don't need to wait for your notice to arrive before making payment; this can be done now via the members area of the website.

If you haven't received your notice by the end of August, please contact the membership team (*membership@actuaries.org.uk*).

Members who intend to apply for partial regulation or a reduced rate subscription should ensure that the correct fee is showing on the website before making any payment.

› Information regarding our subscription policy can be found at **bit.ly/17oPunN**

Dr Wendy Hawes, PhD FIA

13 March 1970 – 27 July 2013

It is with deepest sadness that I write of the untimely loss of one of the stalwarts of the general insurance and actuarial profession, Dr Wendy Hawes, who tragically passed away on 27 July 2013.

Wendy received a PhD from Liverpool University before beginning her career as a lecturer in pure mathematics at Middlesex University. In 1997, she joined the Government Actuary's Department as a trainee actuary and subsequently the Financial Services Authority in 2001, as one of the founding members of its general insurance actuarial team before being promoted to manager in 2010. She had a strong belief in the value of regulation and helped to design the current regulatory framework under individual capital adequacy standards. She also had responsibility for actuarial supervision of the Society of Lloyd's. Wendy moved to Lane Clark & Peacock in 2012 and was recently admitted to partnership, specialising in risk, capital and regulation, including Solvency II.

Board training represented a further area of expertise, where Wendy applied her talent for synthesising technical, actuarial concepts into meaningful and business-relevant messages for non-actuaries.

Wendy's passion for learning and development extended to her significant voluntary work for the profession, as a newly elected member of the IFoA Council, as recently appointed deputy chair of the General Insurance Research Organising Committee, as an examiner for the IFoA and as a guest lecturer at Imperial College and Cass Business School.

Wendy was so many things to so many people: a loyal friend, an inspirational manager, a thought leader, an esteemed colleague, a trusted advisor, a 'mum at work' for several juniors in her teams, a protective sister and a caring daughter. But her most treasured roles were as a loving wife to her husband Owen and as an utterly devoted mother to her son, Jack, around whom her world revolved each day. Wendy was a classically trained singer, an avid rugby fan and a connoisseur of fine food. So fitting for one of the most effervescent and fun personalities you could hope to meet.

A memorial service for Wendy is being arranged in the City. For further details of the service, please email Vishal Desai at **vishal.desai@bankofengland.co.uk**

This abridged obituary was written by Vishal Desai, FIA, a family friend and colleague, with the kind help from others who were also close to Wendy. The full version can be viewed at ***bit.ly/13EGclw***

EVENTS AND CONFERENCES 2013

Masterclass Series
October to December
Topics to include:
- writing the perfect proposal;
- pitching to win;
- beating the competition whatever the size;
- winning business contract to contract.

These sessions will be led by Chris Matthews, who has previously given extremely well-received masterclasses at the Institute and Faculty of Actuaries.
For more information, visit *bit.ly/16NmBSg*

Sessional Research Event: Extreme Events Working Party Paper
17 September, Edinburgh
The extreme events working party will present an afternoon workshop followed by a formal sessional meeting.
To find out more and to book, visit *bit.ly/17s3xca*

Pensions and the Law
17 September, London
Pensions law never stands still and 2013 is again proving to be a year of major change. This seminar gives insights and updates on legal developments, including sessions on professional negligence, an update on case law, sessions on Beckmann rights and GMP conversion and the legal aspects of longevity risk transfers. Presentations will be delivered by speakers from Pitmans and Linklaters – companies that are at the sharp end of advising clients in these areas.
For more information, visit *bit.ly/1aDsR1s*

Highlights of Health and Care – Understanding the Fundamentals Affecting our Products
24 September, London
Register now to hear:
- highlights from the successful 2013 Health and Care Conference;
- topics selected for applicability across all product lines;
- speakers from outside the actuarial profession.

To find out more and to book, visit *bit.ly/15ZHwRa*

CILA II
3 October, Royal College of Physicians, London
CILA II has been compiled to shed some light on the challenges and issues that the life insurance industry will confront over the coming months and years and is intended to provoke new thoughts and an active discussion.
Bookings are now open.
For further information visit *bit.ly/1anWlmP*

If you have any newsworthy items for these pages please email **social@theactuary.com**

Running on Europe's

Andrew O'Brien's 12-in-12 marathon challenge: part two

On the eastern edge of Switzerland, the Swiss Alpine certainly lived up to its reputation. Perhaps best described as a running adventure on Europe's rooftop, the challenging course took us from the town of Davos – the highest city in Switzerland – across the Alps to the village of Bergün.

After a sportsman's breakfast of cold pasta, the race began with an impressive crowd cheering us on. The route weaved around the town for the first 5km, before heading out onto the mountain trails.

A throbbing pain in my knees soon set in, intensifying on descents, though abating on the hill climbs. So, thinking on my feet, I adopted a tactic of plodding down each slope while the other runners sped past, only to overtake them again on the inclines! This meant I maintained a respectable overall pace.

It's high summer in the alpine region and, despite the early hour, the temperature was rising. After passing the 12km mark, the course advanced into the towering forests of firs and pines, providing welcome shade.

At the 32km marker, running became impossible as I scrambled over rocks and tree roots on steep slopes. During the final 5km, I was able to begin running again as the trail gave way to a rugged mountain track and the finish line in Bergün.

A catastrophic event

By Emma Abraham

On 2 May, the London Market Group held an event for actuarial students working in general insurance. Jo Lo and Alan Calder were invited to present on catastrophe model blending. The presentation was an introduction to the issues discussed in the paper by Lo, Calder and Andrew Couper, *Catastrophe Model Blending, Techniques and Governance*, which was presented at GIRO last year.

Catastrophe models are used by many within the insurance market, with much reliance placed on their output. Lo and Calder discussed the sources of uncertainty in catastrophe models, before discussing the ways in which blending may reduce this uncertainty, and model governance. They ended with an example showing that blending models does not always produce a better answer.

A team of six, including three actuaries, from Spence & Partners Ltd, took part in the Martin Currie Rob Roy Challenge on 22 June. Covering 55 miles of the spectacular Rob Roy Way in Scotland, the team ran 16 miles from Drymen to Callander, before switching to bikes for a 39-mile cycle to Kenmore. Team Spence raised a total of £2,892.84 and would like to say a massive thank you to all contributors.

› To read more about the team's experience, visit **www.spenceandpartners.co.uk/archives/rob-roy-challenge/**

Where Have My Savings Gone?

Anyone frustrated/confused/depressed over the sorry state of the rates of interest their hard-earned savings are yielding could do worse than invest £10 of said savings in a new publication by actuary Kathy Byrne. *Where Have My Savings Gone?* was inspired by the author's realisation that, even in a world of 0.5% base rates, it is possible to earn a good deal more on your cash savings if you know how to go about it.

Top seats for Lord Mayor's Show with WCA

The Worshipful Company of Actuaries (WCA) is inviting members of the profession, and friends and families, to view the Lord Mayor's Show on 9 November and/or to have lunch followed by the fireworks on the Thames early that evening. This is a special year for the WCA, with past master Adrian Waddingham holding the position of Sheriff in the City of London and riding in one of the official carriages. The WCA master, wardens and clerk will be in another carriage, and there will be a WCA float in the procession.

› To attend or for details, please contact Alan Botterill at 30 Fitzwarren Gardens, London N19 3TP or email **alanwbotterill@gmail.com**

rooftop

The Swiss Alpine is probably one of the most idyllic marathons in the world, if not the easiest! From forest streams and viaducts, through gorges and mountain passes, to lush green fields and picturesque villages, this route has it all and proved an unforgettable experience.

› Andrew will be heading to the Ugandan bush next for the third race in his 12-in-12 marathon challenge. Updates at **www.12in12forisis.com**

› To donate, please visit **www.justgiving.com/ISIS12in12**

We would be delighted to hear from you if you have any newsworthy items for these pages. Please contact Yvonne Wan at **social@theactuary.com**

Premier's not so lonely runners

By Jeff Brown

Premier Pensions' actuarial team were among the 15,699 runners taking part in this year's British 10k London Run on 14 July. Apart from the minority of elite runners who finish the race before the masses cross the start-line on Piccadilly, this event is widely regarded as a fun-run in aid of UK charities. Although the sunshine was perfect for the spectators who lined the route, the blistering conditions swiftly dispelled any illusions of fun for the runners. The route included some of the City's iconic buildings and finished between two London buses parked in Whitehall. Although Premier's highly tuned athletes failed to meet the qualifying time for the Rio Olympics, the team did succeed in raising over £3,000 for four different charities. After the race, the team met up for well-deserved refreshments.

Marriage

Glyn Bradley (Mercer) and Katy Stephens (Legal & General) celebrated their marriage on 18 May 2013.

OBITUARIES

Alan Farncombe

Died on 18 April 2013, aged 99

Alan Farncombe died on 18 April 2013, just four months short of his 100th birthday. His father died at the end of the first world war and, owing to the family's straitened circumstances; Alan was put in an orphanage at the age of five, where he stayed for 10 years. This traumatic childhood affected him all his life. The orphanage, however, gave him a good education and he won a scholarship to grammar school. On leaving school, Alan joined Pearl Assurance. His mathematical ability was quickly recognised and he studied for the actuarial exams, becoming a Fellow of the Institute in 1941.

In the second world war, he trained RAF navigators. His mathematical ability was again spotted and he was sent to Bletchley Park, where he worked as a cryptographer for the rest of the war. He did not reveal his wartime role for several decades, only recently telling his family.

Alan joined Bacon & Woodrow in 1948 and quickly became a partner. He advised several of the firm's largest pension fund clients through to his retirement in 1974. He also advised insurance companies and friendly societies. Alan also built up a portfolio of pension and insurance clients in Jamaica and Trinidad, which he visited regularly, and this led to the formation in the late 1960s of consulting firm Bacon, Woodrow & de Souza in Trinidad, which still thrives. Alan co-authored an Institute sessional meeting paper with de Souza in 1971, entitled *Life Assurance in the Former British West Indies*.

Alan had a gift for practical, common-sense advice and explaining technical matters in the clearest manner, and his clients held him in great affection. Although shy, he was an amusing companion with a lively sense of humour. He was a mine of general knowledge information and took part in *Brain of Britain* on Radio 4. In retirement, he obtained a degree at the Open University. His wife predeceased him in 1991. *By Michael Pomery*

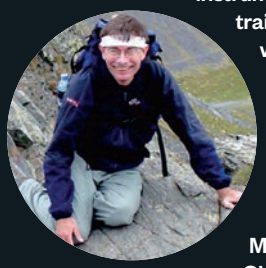
› To read the full version, visit **bit.ly/1dsSLr6**

Christopher George Ide

Died 28 June 2013, aged 62

Chris Ide, past master of the Worshipful Company of Actuaries (WCA), died on 28 June 2013, aged 62. He will be sorely missed not only in the Actuaries Company but also in the insurance world, where he held a number of non-executive appointments.

Chris was an only child, brought up in Croydon. His parents were both officers in the Salvation Army and, as a boy, Chris played various brass instruments in the band. He read physics at Imperial College and then trained as an actuary, qualifying in 1975. He spent most of his career with Swiss Life and was appointed CEO of Swiss Life (UK) in 1989. In 1997, Chris joined the executive board of the group, based in Zurich, with responsibility for European operations.



He then joined Royal London, where he became chief executive of the retail business. He ceased full-time employment in 2004, but took on a range of non-executive appointments, including being chairman of the Exeter Friendly Society and a director of NFU Mutual.

Chris was master of the WCA in 2007/08. His year as master was a very busy one. However, probably his finest contribution to the company and his lasting legacy was his focus on corporate governance. As a result, the WCA now has a governance structure fit for a livery company in the 21st century.

A family man, Chris was very proud of his son from his first marriage and of the young step-daughter he gained when he met Barbara in 1997. Chris offered loyalty, commitment, integrity and enthusiasm in all he did. Sadly, he was still in his prime and had so much more to give. Many of us have lost a good and loyal friend at much too young an age. But we remember him fondly and are thankful for how much he managed to achieve in the time we knew and worked with him. *By Martin Miles*

› To read the full version, visit **bit.ly/14CYELh**

SHUTTERSTOCK / ISTOCK

Maintaining low interest rates 'will keep up pressure on DB liabilities'

Actuaries respond to the 'forward guidance' issued by new Bank of England governor Mark Carney

Actuaries have warned that the Bank of England's decision to hold down interest rates until the labour market picks up will keep up the pressure on UK defined benefit pension scheme liabilities.

'Forward guidance' issued by new Bank of England governor Mark Carney made clear that he intended to leave interest rates at 0.5% until unemployment falls to at least 7% from its current level of 7.8%. He also said the Bank's Monetary Policy Committee would undertake further asset purchases – also known as quantitative easing – while the unemployment rate remains above 7% if it judged that additional monetary stimulus was needed.

Commenting on the announcement, Marian Elliott, head of trustee advisory services at actuarial firm Spence & Partners, said keeping interest rates low would "maintain the upward pressure on liability values of many UK DB schemes".

She added: "Until the unemployment conditions are met and interest rates begin to rise again, we would not expect pension liabilities to reduce significantly on the back of rising gilt yields."

At Hymans Robertson, Graeme Johnston noted that interest rates and inflation risk were "major considerations" for all DB pension schemes.

"Schemes need to decide whether their current assumptions about future interest rates and inflation are correct as they could be hurt significantly if they are proven to be wrong," he said.

› For more on this story, visit **bit.ly/1d4rgGA**

Association of British Insurers highlights huge disparity in annuity rates

Research shows a 46% difference between the best and worst enhanced annuity rates in some scenarios

Annuity rates offered by different providers vary by as much as 46%, equivalent to over £14,000 on the income derived from an £18,000 pension pot, it has been revealed.

The figures come from an Association of British Insurers (ABI) initiative to bring greater transparency to the annuity market by publishing the different rates offered by members based on 12 example customer profiles. Called Annuity Windows, the scheme is part of the ABI's Retirement Choice Code, which was launched in March and aims to help people understand their options as they prepare to stop working.

Annuity Windows shows that there is a 31% difference between the best and worst conventional annuity rates available to a 65-year-old man in the Manchester area with £18,000 to spend. On enhanced annuity rates, the difference is even more stark, rising to 46%.

Malcolm McLean, consultant at Barnett Waddingham, observed that data highlighted the "poor value for money" currently offered by annuity providers.

He said: "Ensuring that people, after often a lifetime of scraping and saving, secure an appropriate return for their efforts remains a challenge the pensions industry and government must address."

› For more on this story, visit **bit.ly/15cd7RQ**

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Fitch 'upbeat' about UK sector

Stronger management in the UK life insurance sector has led credit rating agency Fitch to predict a stable outlook after companies turned in a strong set of results for the first half of 2013. Fitch said that despite the sluggish economy it was "upbeat" about the sector, stating that most UK life insurer credit ratings were likely to be affirmed over the next 12-24 months.

› **bit.ly/13I1ALL**

More consider health insurance

Half of people in Britain are considering buying health insurance as concerns about the impact of financial pressures in the NHS increase, a poll has revealed. A survey of more than 500 people for insurance firm First Assist found that 9% of those asked had already purchased some form of private medical cover, while 41% would consider buying such products in the future.

› **bit.ly/13T6Mar**

UK pension gap rises to £43bn

Deficits on the pension schemes of the UK's largest companies rose by £1bn last year despite good investment returns, according to consultancy LCP's annual *Accounting for pensions* report. It found that the pension schemes of FTSE 100 companies had a combined deficit of £43bn at 30 June, an increase on the previous year's figure of £42bn. Their liabilities totalled £0.5trn.

› **bit.ly/1bVLUEI**

Cost warning on state pension deferral reforms

Planned changes to deferment rules could make people who choose to delay taking their state pension thousands of pounds worse off, actuaries Hymans Robertson have warned.

Currently, people who postpone their state pension receive a 10% uplift in payments for each year they delay. An individual who defers for one year can expect an additional £579 in their annual state pension. For someone who delays for five years, this rises to £2,893.

However, pensions minister Steve Webb last month said he intended to use the Pensions Bill to halve the deferment uplift to 5%.

An analysis by Hymans Robertson showed that this change would cost someone who defers for one year almost £6,000 over 20 years of retirement. Someone who defers for five years would lose almost £29,000 over 20 years.

Chris Noon, partner at Hymans Robertson, said: "If the benefit of deferring state pension receipt falls to 5%, then a large percentage of people will choose to take their pension as soon as they are eligible. This may not be good news for the national deficit."

› For more on this story, visit **bit.ly/175alMU**

DWP: 'Less than 10%' opting out of auto-enrolment

Opt-out rates from automatic pensions enrolment has averaged 9%, with most opt-outs among the over-50s, a survey has found.

Research by the Department for Work & Pensions took place among a sample of 50 private and public sector employers covering some 1.9 million workers. It found 61% were already members of a pension scheme before automatic enrolment began last autumn, and 24% had been automatically enrolled in a scheme. The remaining 15% were ineligible.

The opt-out rate was 9% overall, varying between 5%-15%. Opt-out rates were higher among those aged 50 and over than for other age groups. For the over-50s, opt out was between 25% and 50%, compared with an average 8% rate among those aged under 30.

According to the DWP, participation in a workplace pension schemes has increased from 61% to an estimated 83%, equivalent to an increase from 1.2 million to 1.6 million people.

Tom McPhail, head of pensions research at Hargreaves Lansdown, said: "These results are significantly better than the forecasts, which had predicted opt-out rates of up to 30%."

But he added: "The largest employers were always likely to produce the best results so the real challenges still lie ahead."

› For more on this story, visit **bit.ly/175In5A**

FSB lists too-big-to-fail insurers

The Financial Stability Board (FSB) has designated nine insurers as global systematically important insurers (GSIIs): Allianz, AIG, Generali, Aviva, Axa, MetLife, Ping An Insurance, Prudential Financial and Prudential Plc. The GSIIs will have higher loss absorbency requirements, and will have to establish a crisis management group by July 2014. Each crisis management group will have to agree a recovery and resolution plan by the end of 2014. The FSB will review the list of GSIIs each November. The backstop capital requirements will be developed by the International Association of Insurance Supervisors (IAIS) by the time of the G20 summit in Brisbane in November 2014. The FSB said that, building on the above capital requirements, the IAIS will develop by the end of 2015 implementation details for the higher loss absorbency requirements. The IAIS said that the companies included were selected because of their size, internationalism and level of non-insurance activity. Mark Carney, recently appointed Bank of England governor and FSB chairman, said that these policy measures "will be followed over time by a substantially strengthened comprehensive regulatory and supervisory framework for all internationally active insurers".

Terrorism coverage at risk

As new legislation is introduced to the US House of Representatives to renew the Terrorist Risk Insurance Program Reauthorization Act (TRIPRA), rating agency Fitch has warned that "withdrawal of TRIPRA reinsurance protection without readily available substitute coverage could lead insurers to exclude terrorism from property coverage to manage risk aggregations". Fitch noted that, in the past 10 years, private market stand-alone terrorism coverage has increased, but said it was unlikely that substantial private market capacity would appear if TRIPRA expired at the end of 2014, as is currently scheduled. Likewise, it is also probable that expiry would have a significant impact on pricing and availability of workers' compensation, where US law does not permit insurers to exclude terrorism-related losses.

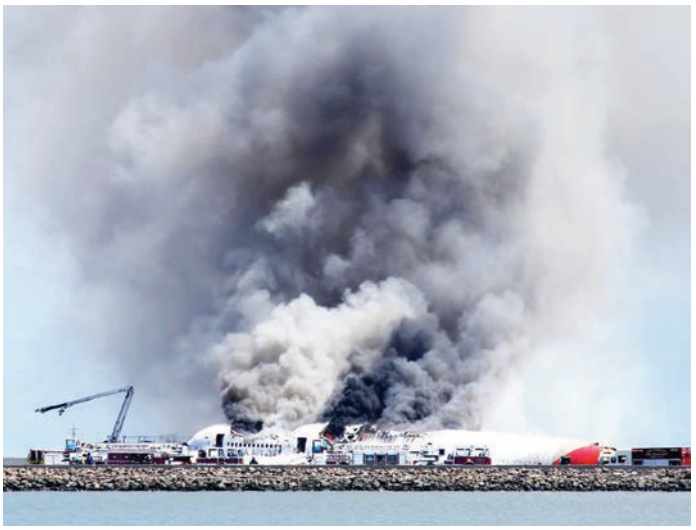
Fears raised over whiplash plan

The Transport Select Committee (TSC) published its report on the cost of motor insurance in mid-July. The report did not support the Ministry of Justice's proposal to move most whiplash claims to the small claims court procedure. The TSC acknowledged some arguments in favour of moving, but raised concerns that access to justice could be impaired for some people. In addition, the report suggested that the change might prove counterproductive in reducing fraud, as well as potentially creating new opportunities for claims management companies. The report was critical of insurers making offers to claimants prior to seeing medical reports and noted that "our previous recommendation on making the links between insurers and other parties involved with claims more transparent has been ignored". The Association of British Insurers (ABI) quickly responded, stating that the report "has kicked into the long grass" the tough calls for reform. James Dalton, ABI head of motor insurance, said the TSC was right to identify the need to tighten up the requirements for those submitting whiplash claims. "Whiplash now costs UK motorists over £2bn a year, adding £90 to the average premium," he said, claiming that the UK was "the whiplash capital of Europe", on the grounds that a significantly high percentage (78%) of low-value motor personal injury claims in the UK were for whiplash, compared with an average of 48% throughout the rest of Europe.

Quinn gets fast-track legal action

Ireland's commercial court has given Grant Thornton, the administrators of Quinn Insurance Ltd, approval for a fast-track legal action against PricewaterhouseCoopers (PWC), in which it alleges that PwC was guilty of a fundamental breach of its obligations and duties as auditor – an accusation which PwC Ireland described as "unjustified and devoid of merit". The administrators are suing PwC for €1bn. Any damages awarded would be used to repay the Irish government, which led the *Irish Times* to hypothesise that it could lead to an end of the 2% levy on Irish non-life policies, the proceeds of which are being used to pay back the €1.1bn that the Irish government has advanced to the compensation fund for former Quinn policyholders, and which currently could stay in place until as late as 2030.

LARGE LOSSES



US$2.25bn Liability insurance on the Asiana Airlines flight that crashed at San Francisco International Airport in July

▶ US air crash – 6 July

An Asiana Airlines flight crashed at San Francisco International Airport. Two passengers were killed and another 182 injured. Preliminary examination of evidence by the US National Transportation Safety Board suggests that pilot error may have been responsible for the crash landing of the plane.

The aircraft's tail section hit a sea wall at the foot of the runway and the subsequent fire quickly destroyed much of the plane. It was the first fatal accident involving a Boeing 777 since the model came into service in 1995.

The aircraft had $130m (£84.1m) hull and engine insurance, plus $2.25bn (£1.46bn) liability insurance, according to South Korea's Financial Supervisory Service.

▶ Spanish train crash – 24 July

A train derailed in Santiago de Compostela, north-west Spain, killing 79 people and injuring 170 others. Spanish judicial authorities have said that the train was travelling at 192km/h (119mph), which is more than twice the speed limit, on the bend where it derailed.

The Spanish arm of Allianz SE and the European division of QBE have been confirmed as the main insurers.

Allianz Seguros covers a compulsory personal accident policy for Spain's state-owned rail network Renfe Operadora, while QBE covers injury to third parties and rail infrastructure if it is established that the train operator bears responsibility for the crash.

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THE FREE MARKET ACTUARY

Philip Booth is editorial and programme director at the Institute of Economic Affairs and a professor at Cass Business School. Actuary and economist, he has worked for the Bank of England as an advisor on financial stability. **Nick Silver** and **Sarah Bennett** met him to discuss his views on the public presence of actuaries, regulation, free market principles and his faith

To meet professor Philip Booth you must walk past the House of Commons before entering an impressive Georgian building to climb a creaking set of stairs, watched by rather unsettling portraits of dead economists. His office is stuffed full of books, many of which he is the author of, and presided over by a poster of Friedrich Hayek, his intellectual hero.

Booth is editorial and programme director at the Institute of Economic Affairs (IEA), a post he has held for more than 10 years and which he readily describes as his dream job. The role has only become available three times in the past 50 years and Booth considers himself lucky to be the current incumbent. He also lectures part-time at Cass Business School as professor of insurance and risk management.

The IEA is a free market think tank. Its raison d'être is not to change individual pieces of legislation, but rather to change the intellectual climate. Booth explains: "It is easy to link cause and effect in the short term, however the IEA's objective is to change the climate of opinion in the long term. It is difficult to measure success; for example, did Geoffery Howe and Margaret Thatcher abolish exchange controls in October 1979 as a result of an IEA paper written in 1955? It is difficult to trace it back to forces trying to change opinion a decade or two earlier."

In the beginning

Before joining the IEA, Booth studied economics at Durham University and began his actuarial career at Equity and Law. Shortly afterwards, he accepted a position as lecturer in actuarial science at City University. At the time, he was only three-tenths qualified and younger than many of his students. On one occasion the registry refused to give him the exam papers, believing him to be a student.

He was also seconded to the Bank of England for one year. At the time there was very little institutional knowledge of the non-bank financial sector and one of his jobs was to translate banking into insurance language and vice versa. He also worked on credit derivative swaps. There was a debate in the Bank of England then as to what was meant by systemic risk, an argument that has still not been resolved intellectually. Booth took a relatively narrow view – to focus on the banking system, as he believed there was an inherent danger in regulating absolutely everything as if it were a potential banking risk. Before joining the IEA he went back to Cass at City University, becoming associate dean of the business school.

The role of the actuary

Our discussion naturally moved onto the topic of the role of actuaries and the fact that actuaries have in the past shaped public policy – and were instrumental in shaping the 1870 Life Assurance Companies Act. "Actuaries should inform government policy through submissions, feed into the debate and, as legislation becomes defined, the actuarial profession should take part in the discussion and contribute," says Booth. "Given the position and role of the IEA, I regularly participate in debates and more actuaries should be getting involved in these discussions."

There are two areas in particular where Booth feels that the profession failed to speak out, with deleterious consequences. When state pension contracted-out rebates were reduced in the 1990s, actuaries should have contributed to the public debate. He states that it would have been appropriate for the profession to have pointed out that the reductions meant that fair actuarial value was no longer paid, which led to the devaluation of contracting out as a solution. He also believes that the profession should be more vociferous about public sector pensions. "It is difficult on the one hand to ride the horse of financial economics for private sector pensions accounting and on the other hand to ride the

"Detailed prescriptive regulation can crowd out the application of sound subjective judgment"

horse of complete arbitrariness for public sector pensions accounting," he says.

Model risk management

Understanding the weaknesses of our models is key, Booth says. When trying to ensure the long-term sustainability of a pension fund or manage the solvency of a life insurance company, he thinks there is a lot we can learn from financial economics but there is a danger, in that we think we know more than we do. The focus should be on understanding risk rather than finding a closed-form solution.

We should be wary of relying too much on complex models, he advises. This is one of the elements that led to the financial crash. Directors cannot possibly understand the assumptions behind the complex models. We should not lose sight of the fact that we need an understanding of the underlying mechanisms and risks in financial institutions. Booth pauses to look up a well-known quote from Hayek: "The curious task of economics is to demonstrate to men how little they really know about what they imagine they can design."

He continues: "There are other things that actuaries can learn from modern economics. An actuary may be required to verify that accounts for a pension fund are determined in accordance with regulations and mark to market techniques," he says. "But if an actuary understood the impact of unusually loose monetary policy on asset markets the actuary might judge that, in their view, the market values are not a 'true and fair' representation of the underlying situation. Regulation would overrule prudent judgment."

If the public does not like a valuation, Booth believes this will be taken into account in a company's share price. "Friedrich Hayek (and the IEA) believe in free markets, but the market is not free if it is controlled by legislated accounting standards." As the profession has expanded, it is more of a challenge to come up with a unified view, but Booth holds that actuaries are far too bogged down in regulatory detail as they deal with the intricacies and the detail of Solvency II, for example.

Financial regulation

A key interest of Booth is financial regulation. The old Life Assurance Companies Act of 1870 worked pretty well, and it consisted of three main elements. First, the insurance company was required to put down a deposit. Second, it was

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required to publish accounting information to the market via the Board of Trade. Third, a special regime was provided for winding up insurance companies. In 100 years, there were only two failures and neither affected policyholders. There was no expectation that the state would step in to cover liabilities. "More than 140 years on we need similar rules for banks," says Booth.

The changes in insurance regulation in the 1970s and 1980s, partly due to European Union legislation, have resulted in the judgment of actuaries being replaced by the bureaucracy of the regulator. "I do not see the need for capital regulation at all," states Booth. "Financial institutions will behave prudently provided they bear the risk of their actions. Of course we will get catastrophes and there should be a safe mechanism of winding-up, but we should not have statutory capital regulation."

Regulation does more damage, as it inhibits competition and promotes complexity. "We assume problems can be regulated away but interfering can make them worse. The banking regulations made the market more complex. Even the hint of bailout changes the behaviour of providers of capital."

In Booth's opinion, the 2007 financial crisis was largely down to government interference, both implicit and explicit. He explains: "Detailed prescriptive regulation can crowd out the application of sound subjective judgment."

"If you look at the causes of the financial crisis it was not casino banks bringing down retail banks. The problem was the moral hazard created by the government in the 'Land of the Free'. The banking system had become a welfare state for bankers. There was explicit encouragement of bad lending in the US, Freddie Mac and Fannie Mae in the US, weak bankrupcy law in the US and the perception that loosened monetary policy would support the securities markets." The crisis has been attributed to a relaxing of regulation but there was heavy regulation elsewhere. Contributing factors included the underwriting of the housing system, loose monetary policy and economic models that underestimated the downside.

Free markets and Catholicism

Professor Booth's beliefs reflect the IEA's championing of a free market economy, which rests on three pillars:

- State planning does not work – it is only through a free market economy that we thrive.
- Planning of economic activity by government is impossible; the process of trial and error by the free market is integral to success. In the NHS and education we see the disruptive change caused by central planners and shortages of school places because government is slow to react to increased demand.
- A preference for economic life to be based on mutual cooperation within a society rather than have behaviour regulated or goods and services allocated by the state.

At first glance, this appears contradictory to Booth's religious views, (as you would think the Vatican a statist organisation), yet he seems to have had no reverse-Damascene conversion. He is a devout Catholic and has written extensively on Catholic social teaching and the market economy, and participated in two private audiences with Pope Benedict XVI. He argues that the Catholic Church is very clear on the importance of family, private property and the importance of government not interfering in education. Catholics believe in the primacy of charity rather than in state welfare, which is not to say there is no place for state welfare.

Pensions

The IEA has asserted the importance of private pensions provision. Pay-as-you-go (PAYG) promises have proved disastrous and, Booth believes, will undermine the financial stability of the country.

"We need to focus on the importance of private pension provision, which provides greater freedom in times of demographic uncertainty," he says. "If people want to save they can retire earlier, if not they can work longer. As it happens, there is strong evidence that working longer improves health."

If the government is going to provide subsidies, it seems sensible that it should be to private pension provision rather than unfunded state PAYG.

The state will always need to redirect income to the poor, and Booth agrees that means-testing provides adverse incentives, but he would rather have low taxes, fewer universal benefits and means-tested benefits providing a safety net. The state also currently provides insurance for insurable risks. Booth doesn't think it should be providing for these risks at all, as it replaces and ultimately demolishes the private sector and institutions based on reciprocity and principles of community and mutuality. This also leads to unsustainable outcomes; for example, the implicit PAYG liabilities for health are just as large as for pensions.

So what are his views on the National Employment Savings Trust (NEST)? "I object to auto-enrolment because it is an additional burden on employees and employers," says Booth. "For many young people paying their mortgage back is probably the best option. They can make use of NEST when older. Employers do not need additional costs. If NEST replaced government pensions, I would be comfortable. If the purpose is to provide sufficient to float people off means-tested benefits, the proposed flat-rate state pension is supposed to do this. Auto-enrolment is a further imposition."

It must be difficult to hold views that are as contrarian to mainstream debate as professor Booth's are. But the only area where he has had a significant amount of adverse mail is around pensions reform and cuts for older people. Although his views are controversial, they are hard to argue with when faced by the full force of his intellect. A

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TUESDAY 10 SEPTEMBER	PROGRAMME EVENT
An introduction to Periodic Payment Orders **Julian Leigh, Deloitte** **Staple Inn Hall, High Holborn, London WC1V 7QJ** **5.30pm**	This paper introduces periodic payment orders (PPOs) to those who are not familiar with them, and discusses how they have affected, and are likely to continue to affect, general insurers, especially those aspects that are more common in life assurance than general insurance. It also considers their long-term consequences and the issues of reserving and capital. The paper does not assume any prior knowledge of the area and so is a great introduction to the topic for student actuaries. The aim is that the different perspectives of those who work in life assurance and in general insurance will bring some cross-sector insight to this area. We also hope that a discussion on the questions the paper raises about valuation issues will advance thinking in these areas. Refreshments will be served from 5.30pm and the talk will start promptly at 6pm. There is no need to register in advance for this meeting.
TUESDAY 8 OCTOBER	**SOCIAL EVENT**
Welcome drinks **Staple Inn Hall, High Holborn, London WC1V 7QJ** **5.30pm** 	SIAS would like to welcome new members of the actuarial profession to evening drinks at Staple Inn Hall. This is an ideal opportunity to meet fellow new joiners and to learn about SIAS and the profession. The evening will include brief but informative talks from the profession about becoming an actuary and what life is like as a student actuary. This will be followed by some drinks and entertainment, allowing you to meet other new members. For those of you not so new to the profession, please encourage the new joiners in your company to attend. This is an excellent opportunity for them to learn about becoming an actuary as well as getting to know other new members. Refreshments will be served from 5.30pm and the presentations will start promptly at 6pm. There is no need to register in advance for this meeting.
FRIDAY 22 NOVEMBER	**SOCIAL EVENT**
SIAS annual dinner **Old Billingsgate Market, Old Billingsgate Walk, London EC3R 6DX** **6.30pm**	To apply for tickets: 1) Download an application form from *www.sias.org.uk/socialevents*. 2) Email the completed form to *social@sias.org.uk* on Wednesday 9 October (we regret that we cannot process applications received before this date). Last year's event was hugely popular, with tickets selling out within 12 hours, so be sure to get your application in early.

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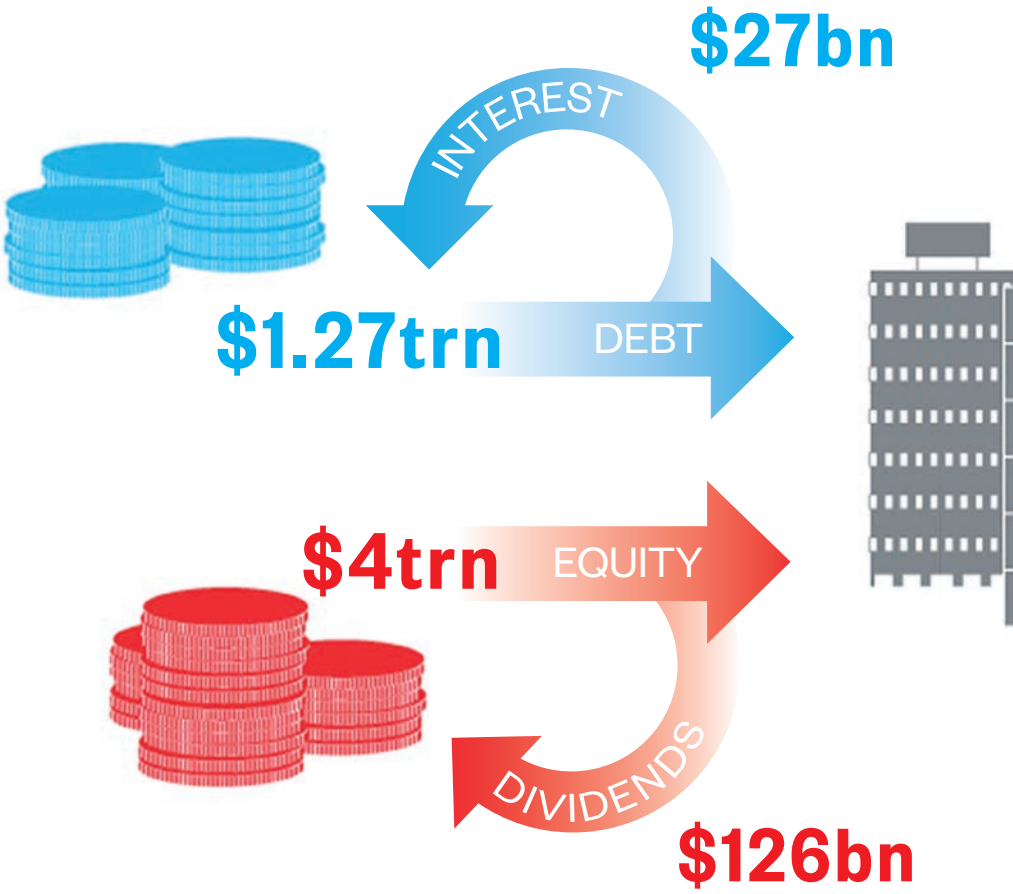
Beware the carbon bubble

Catherine Cameron, Elisa Hewlett, Simon Jones and **Paula Robinson** evaluate the current carbon budget commitment and the implications for fossil fuel investments

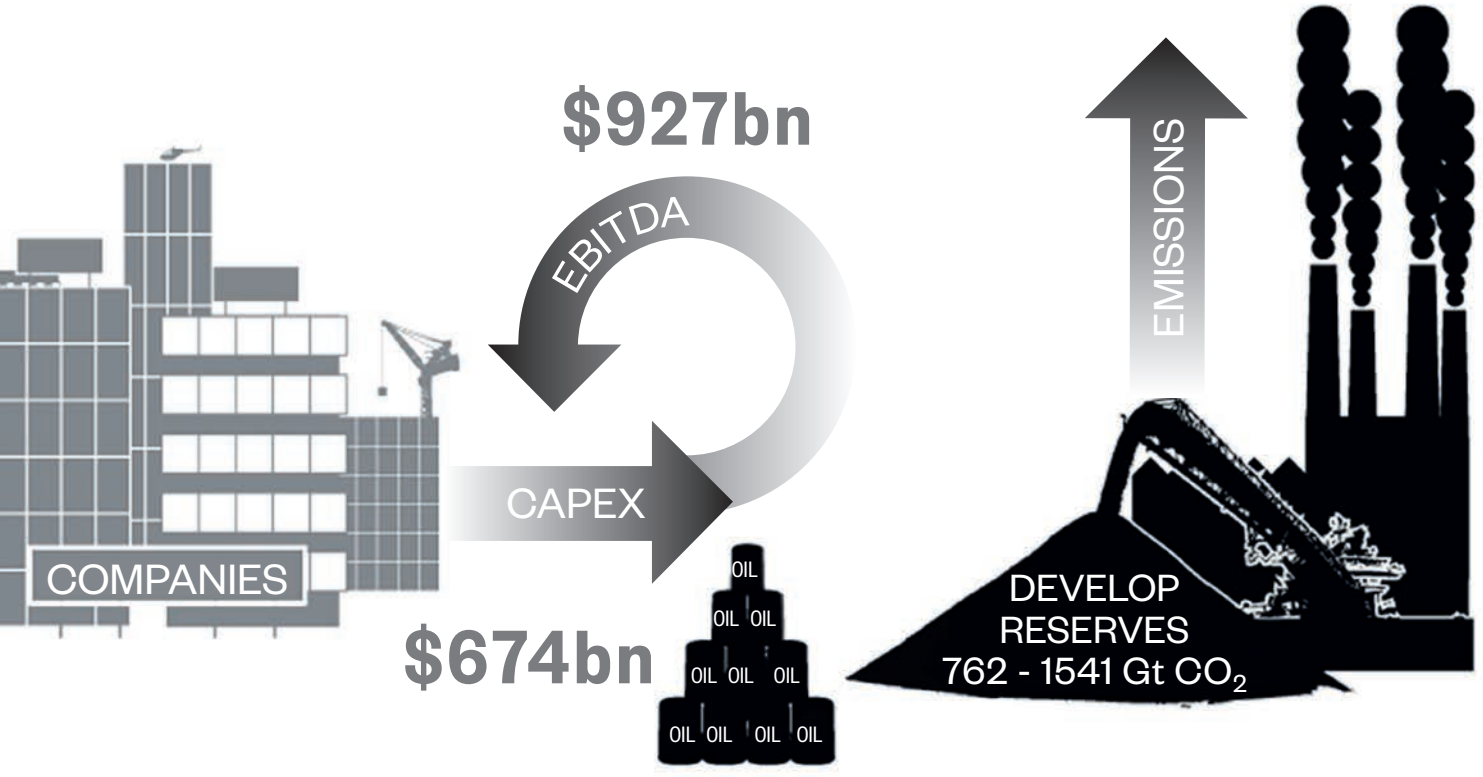


The Carbon Tracker Initiative's recent *Unburnable Carbon 2013* report estimates that the consumption of the earth's proven fossil fuel reserves would yield over five times the level of carbon emissions recommended by climate scientists to stay below a 2°C rise in temperature, the limit necessary to avoid dangerous interference with the climate system. Yet many listed fossil fuel companies are currently valued assuming that all resources will be extracted and consumed. If the assets underpinning the value of fossil fuel companies cannot be extracted without catastrophic climate interference, then the current valuations of these companies are fundamentally flawed and the assets are 'stranded'.

If governments act to keep the temperature rise below 2°C by putting a higher price on carbon – which arguably becomes more likely as this threshold is approached – then the value of these

Left to right: **Catherine Cameron** is director at Agulhas Applied Knowledge. **Elisa Hewlitt** is an investment actuary at Mercer. **Simon Jones** is senior investment consultant at Hymans Robertson. **Paula Robinson** is senior investment analyst at Buck Global Investment Advisors

The authors are grateful to Tracey Zalk for initiating the idea for the piece



Source: © Carbon Tracker & Grantham Research Institute, LSE 2013

stranded assets, and the companies and sectors that hold them, will decline sharply. While certain groups have highlighted this risk [1], to date it has not been widely recognised by investors and not yet factored into models for which actuarial advice on funding and investment decisions are based.

Limiting carbon emissions

The 2002 United Nations Framework Convention on Climate Change incorporated the concept of avoiding dangerous climate change by limiting the rise in the global average temperature to no more than 2°C above pre-industrial levels by 2050. Governments are currently preparing for a new international treaty in 2015 which will likely include further targets for reducing global emissions. The UK government has committed to a mandatory 80% cut in carbon emissions by 2050 on 1990 levels, with an intermediate target of 34% by 2020 [2].

The 2°C limit implies that there is a maximum amount of carbon dioxide (CO_2) that can be emitted globally during the period to 2050, i.e. a carbon budget. Analysis by the Carbon Tracker Initiative and the International Energy Agency indicates that the carbon budget for a 2°C scenario is equivalent to CO_2 emissions of between 565 to 886 billion tonnes (565-886 Gt) by 2050 [3]. The Carbon Tracker Initiative has stress tested these carbon budgets for different temperature targets against a 50% and 80% probability of peak warming [4] (see graph on page 24). It highlights the reduced room for manoeuvre of exploiting reserves.

The carbon budget

We are rapidly consuming our remaining carbon budget. According to the 2013 International Energy Agency report *Redrawing the Energy Climate Map*, CO_2 levels in the atmosphere reached 400ppm in May 2013, having jumped by 2.7ppm in 2012 – the second highest rise since record-keeping began.

Bankable, not burnable assets

In the 2°C scenario, with a 50-80% probability of limiting temperature increases, the carbon budget represents at most one-third of the carbon embedded in the earth's fossil fuel reserves. A dilemma therefore arises: do we adhere to the carbon budget constraint and fossil fuel reserves remain unexploited (i.e. assets will be stranded), or ignore the constraint, exploit all and roll the dice on a safe future?

While listed fossil fuel companies do not account for the total fossil fuel reserves, based on a pro-rata allocation of the global carbon budget, potentially 60-80% of coal, oil and gas reserves of listed firms' reserves, which are priced into balance sheets and consequently share prices, are potentially unburnable and therefore of no value.

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"In the context of a declining carbon budget, these valuation models provide an inadequate guide for investors and need to be recalibrated"

Figure 1 Comparison of listed reserves to 50% probability pro-rata carbon budget

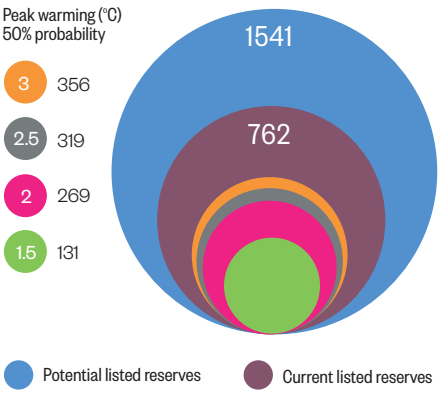
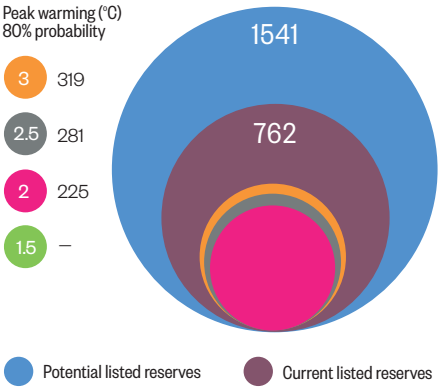


Figure 2 Comparison of listed reserves to 80% probability pro-rata carbon budget



Source: © Carbon Tracker & Grantham Research Institute, LSE 2013

Despite this, the top 200 listed oil, gas and mining companies have spent over $650bn in the last year researching and developing further reserves and new ways to extract them. At the current rate of capital expenditure, the next decade will see more than $6trn allocated to developing fossil fuels. While technological developments in areas such as carbon capture and storage may allow some flexibility, with a declining carbon budget allowance committed by governments, much of this expenditure risks being wasted on unburnable assets. The diagram on pages 22-23 shows the capital flow.

Listed companies also have interests in undeveloped fossil fuel resources that would double the market burden of embedded carbon. The current balance between funds being returned to shareholders, capital invested in low-carbon opportunities and capital used to develop more fossil fuel reserves needs to change. The business model of recycling fossil fuel revenues into replacing reserves is no longer valid and if current trends continue we risk a carbon bubble.

Inadequate valuation models

The 200 fossil fuel companies analysed have a market value of $4trn and debt of $1.5trn. Asset owners and investment analysts have begun to recognise the implications of unburnable carbon, with analysis from HSBC suggesting that equity valuations could be reduced by 40-60% in a low-emissions scenario. Standard & Poor's warned that the bonds of fossil fuel companies could be vulnerable to credit rating downgrades, leading to companies paying higher rates to borrow capital, or struggling to refinance their debt in the case that the rating drops below investment grade [5].

However, while warnings are being flagged, the risk is not being systematically priced into either equity or credit markets. An implicit assumption of current market valuations is that the fossil fuels will continue to be developed and sold with the capital released used to replace reserves with new discoveries. In the context of a declining carbon budget, these valuation models provide an inadequate guide for investors and need to be recalibrated.

What should investors do?

Such a systemic risk threatens the stability of financial markets. Markets appear unable or unwilling to factor in the long-term shift to a low-carbon economy into valuations and capital allocation. This means:

- Investors need ongoing education to understand their exposure to a range of future scenarios.
- Investors need to ensure that these risks are considered in the risk management and asset allocation processes.
- Investors should ensure those charged with the management of equity portfolios are actively engaging with companies to ensure that management are scrutinised and challenged effectively on their use of capital.
- Investors need to engage with policymakers and financial regulators about long-term systemic risks posed by climate disruption [6].

Improved transparency and risk management are essential for the maintenance of orderly markets, avoiding wasted capital and potentially catastrophic climate impacts.

What should actuaries do?

Climate change is a complex risk, where the scale and location of impacts are not entirely predictable or measurable. This makes it easy to ignore. However, Mercer's 2011 report *Climate Change Scenarios – Implications for Strategic Asset Allocation* found that climate risk could represent 10% of portfolio risk and the emergence of a carbon bubble cannot be ignored.

There needs to be a change in the mindset of actuaries to redefine our understanding of risk. This issue should be brought to the forefront of discussions with clients so we, and they, can begin to consider the possible long-term implications of climate risk on both assets and liabilities.

Failure to do so could result in misaligned investment strategies and the significant devaluation of assets. Failure to do so could make it too late to act. Ⓐ

REFERENCES

Full references for this article can be found online at www.theactuary.com

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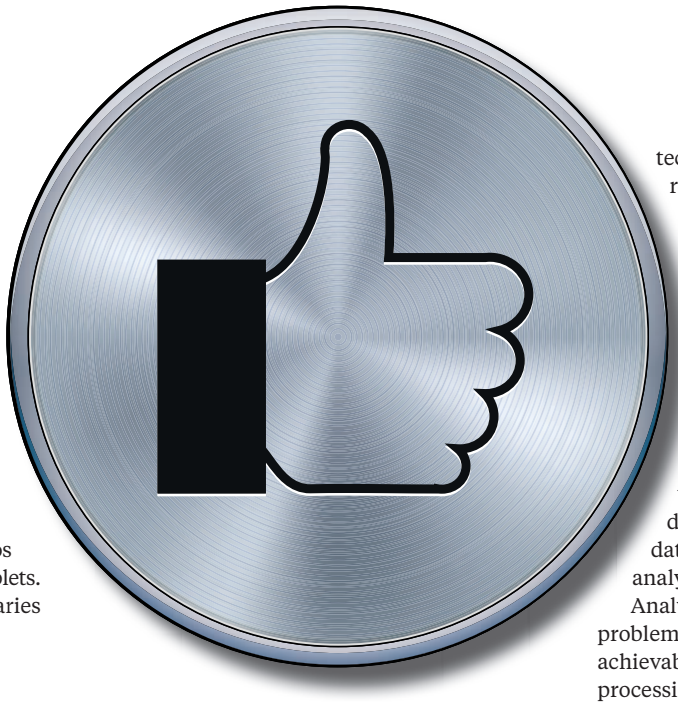
WIN OR LOSE

Graham Robertson explains the advantages of embracing technological advances – and the consequences of ignoring them



Recent technological advances have given insurers more data and processing power than ever before. Insurers are using new information, such as driving telematics, to better understand customer behaviour. They are also changing their business models to keep pace with the outside world. Gone are the days when management information was out of date by the time it reached executives. Managers want real-time information on which to base decisions, and technology has caught up. Real-time business scenarios can be run remotely on phones and tablets. So, with this backdrop, how will actuaries evolve to keep up?

Understand the data

Having lots of data is one thing, but the ability to segment this data in multiple ways allows managers to understand the business better. The same is true of financial results and performance indicators. Visualisation tools can help to digest information in order to get to the root cause of trends or results quickly, and allow drill-down into particular segments. This information can better inform business plans and scenarios, giving an insurer competitive advantage, and actuarial input into their design is paramount.

Technology in a global world

Global insurers should use technology that can be accessed, executed and reported upon from anywhere in the world. Consistency across business segments drives quicker and better understanding by management and leads to better decisions.

As an example, consider a global insurer, whose planning process involves linking together large numbers of spreadsheets to get to its business plan. The planning process takes considerable time and new iterations of the plan cannot be achieved quickly. Producing the business plan requires much manual intervention in data processing and that time could be better used formulating the strategy and plan itself.

Compare this with a global insurer that has a consistent enterprise planning solution, accessible from any country and requiring minimal set-up or manual intervention. More time can be spent on planning and analysis to help to ensure business success. Add in extra technology-driven capabilities such as reforecasting, integration with the capital model and scenario modelling, and you quickly see how much value is derived from having better technology.

GRAHAM ROBERTSON is a senior manager in Deloitte's actuarial and advanced analytics practice

Horsepower = insight

Improved technology also enables more extensive data capture and manipulation. Available data has reached a level that is changing the way we model risks. We see this in driving telematics, where continuous data on driving ability is being used to analyse risks more accurately.

Analysing large data sets has been problematic historically but is becoming achievable as technology advances. Increased processing power has enabled enhanced techniques, and newer actuarial disciplines, such as predictive modelling, have taken a quantum leap forward. Analytics teams are running intelligent algorithms on large data sets to provide new insights. Trends and indicators emerge to inform judgements.

Where do actuaries fit in?

Actuaries must strive to be at the centre of these initiatives. Combining our insurance insight with advanced modelling will take the industry forward. Actuaries do not need to be experts in technology, but we do need to understand it to improve our contribution. The profession has come a long way – from pencil and paper, through spreadsheets, and onto enterprise tools and advanced analytics. More accurate, relevant, transparent modelling, using superior technology, will optimise decision-making, and actuaries should lead this initiative. Our expert judgement will be enhanced and this will benefit our profession, the industry and consumers.

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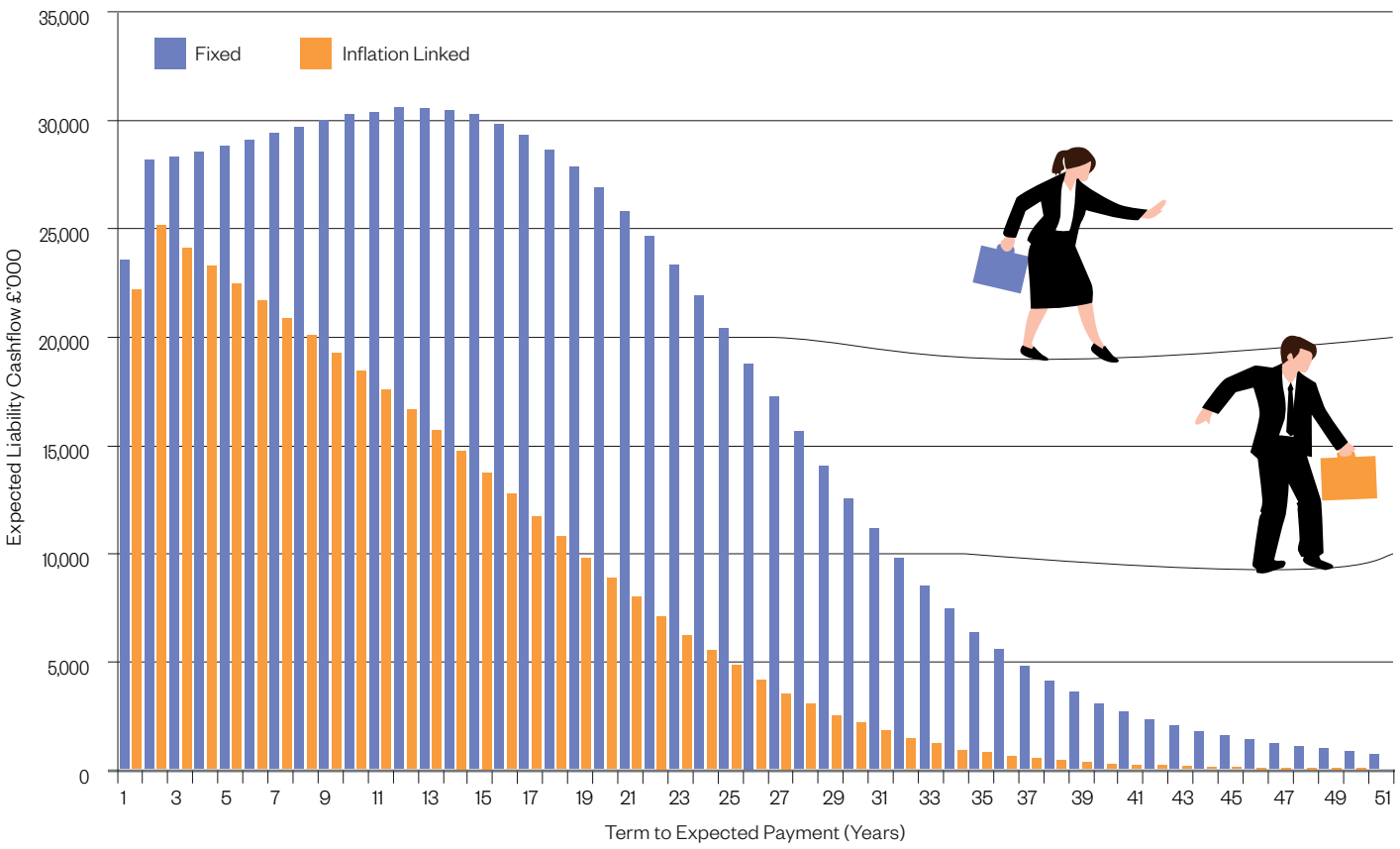
Striking the right balance

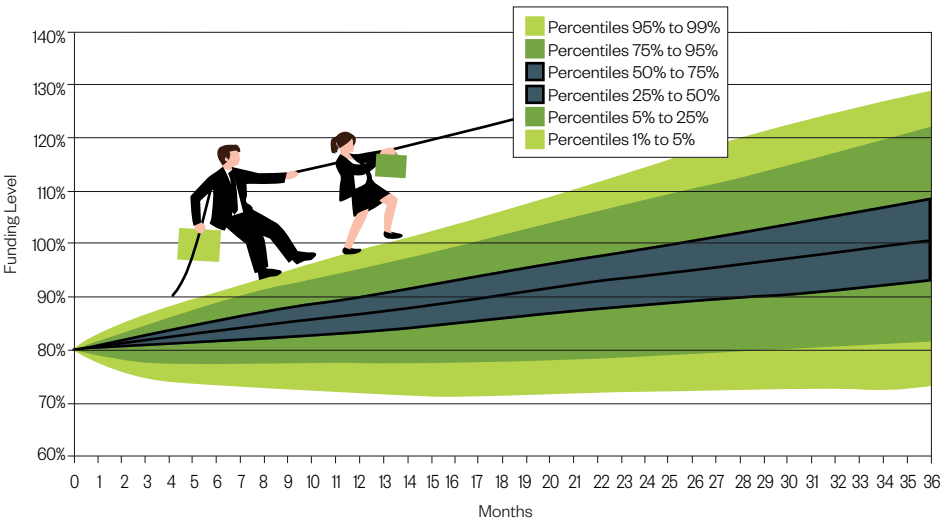
Figure 1: Scheme expected liability cashflow profile



GEORGE TYRAKIS is a solutions specialist at Moody's Analytics

An intelligent asset rebalancing strategy can help to reduce pension scheme risk. **George Tyrakis** discusses the possible approaches – and potential pitfalls

Figure 2: Funding level projection over 36 months under the initial-proportion asset-rebalancing strategy



Traditionally pension schemes have maintained static asset allocations, where the portfolio is allocated across a range of asset classes in line with the scheme's risk budget. As asset values fluctuate, the asset portfolio requires rebalancing to ensure the desired portfolio weights are maintained. Naturally, a number of questions arise. For example, at what frequency should the portfolio be rebalanced? What are acceptable limits for the portfolio weights to deviate from the initial allocations? Is a fixed asset allocation suitable for the scheme at future dates?

Comparing strategies

Consider the additional expected return or risk reduction achieved from enacting one or more asset rebalancing strategies. An ex-ante assessment of the benefit of such strategies can relate to the reduction in various risk measures like Value at Risk or Expected Shortfall over a modelled time horizon. This assessment process can be extended to allow for additional measures including the probability of "success" or achieving a 100% funding level at a given horizon.

The benefits of comparing alternative rebalancing strategies can be readily observed when considering an example closed defined benefit pension scheme. Figure 1 shows the example scheme's expected liability cashflow profile.

Calculating the present value of the expected liability cashflows using current risk free nominal and real yield curves, this illustrative scheme is currently 80% funded. The trustees and sponsor have agreed an appropriate contribution schedule over the next three years which, in conjunction with anticipated investment returns, is expected to eliminate the deficit.

Using an Asset-Liability Model with a suitably calibrated Stochastic Economic Scenario Generator (ESG), the assets and liabilities of the scheme have been projected stochastically over future periods. The yield curves used to discount the liabilities were produced in the ESG and these were also used to drive returns on fixed income assets. Real-world correlations between various asset classes were modelled together with the realistic dynamics of the assets held, such as equity market jumps and time-varying equity volatility. For the purposes of this exercise, longevity risk was not modelled so as to focus the analysis on market risks and how these impact the assets and liabilities. The asset portfolio used is shown in Table 1.

Possible outcomes

The range of possible funding level outcomes over the time horizon can be illustrated using a probability distribution funnel generated using Monte Carlo simulation.

In Figure 2, assets are rebalanced on a monthly basis using the initial allocation as a target benchmark. This can be thought of as 'strategy neutral' because the asset allocation is mechanically rebalanced on a passive basis.

Consider revising the asset portfolio rebalancing strategy, so that the target asset allocation changes as the funding level of the scheme moves into different ranges as shown in Figure 3.

If the funding level breaches any of the conditions shown above, from above or from below, the asset portfolio is rebalanced accordingly. Under this strategy, the initial asset allocation (shown in the Funding Level <85% column of Figure 3) requires a small increase in UK equities to in order to offset some of the lost return due to de-risking so as

Table 1: Scheme asset allocation under initial proportion rebalancing

Asset Class	Allocation
Cash	10%
UK Equity	40%
UK Corporate Bonds	10%
Gilts	20%
Index-Linked Gilts	20%

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to ensure that the scheme's target of achieving 100% funding in three years is attained on average.

Introducing an intelligent asset rebalancing strategy results in the following risk reductions:

- Probability of Success, defined as the probability of being at least fully funded over the three years, is relatively unchanged under both strategies given both strategies target and achieve a median funding level of 100% at the end of three years.
- Standard Deviation of funding level is reduced by 5% per annum.
- Conditional Expectation, defined as the expected funding level given the funding level is below 100% in year three, has increased by 2%, another desirable outcome.
- The potential deterioration of funding level over time is significantly reduced as can be seen by lower 1-in-200 Value at Risk and Expected Shortfall risk measures.

The above reduction in risk has come at the expense of reduced upside potential. The gradual risk reduction rebalancing strategy is effectively reducing the overall riskiness of the asset-liability position, and therefore its return potential. Despite this, a more closely matched asset-liability position over time would be desirable from a funding perspective, as it would increase the probability of achieving the investment objective, which has previously been illustrated (Puchy, 2012).

Refinements of the above strategy are possible: for example, one may wish to incorporate economic triggers into the strategy, such as to initiate de-risking once long-term interest rates rise above 4% or smart beta strategies such as volatility control. The inclusion of leverage effects in the presence of derivatives such as swaps or futures can also be incorporated in similar analysis. A

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Table 2: Comparison of risk measures under the two asset rebalancing strategies

Risk Measure	Rebalancing Strategy Initial Proportion	Rebalancing Strategy Dynamic	Risk Reduction
Probability of Success	51.5%	51.3%	n/a
Standard Deviation	12%	7%	5%
Conditional Expectation	91%	93%	2%
1-Year Value at Risk	11%	11%	0%
2-Year Value at Risk	13%	10%	3%
3-Year Value at Risk	12%	7%	4%
1-Year Expected Shortfall	14%	13%	1%
2-Year Expected Shortfall	16%	13%	3%
3-Year Expected Shortfall	17%	11%	5%

Figure 3: Dynamic asset allocation rebalancing strategy

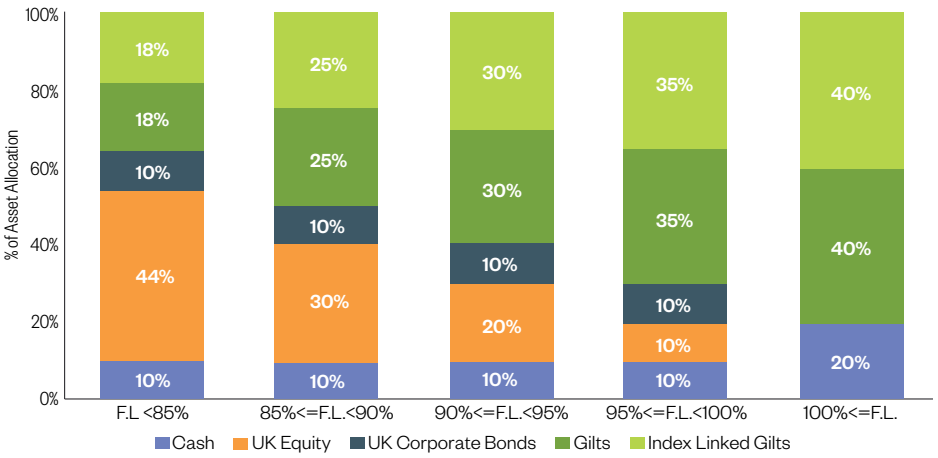
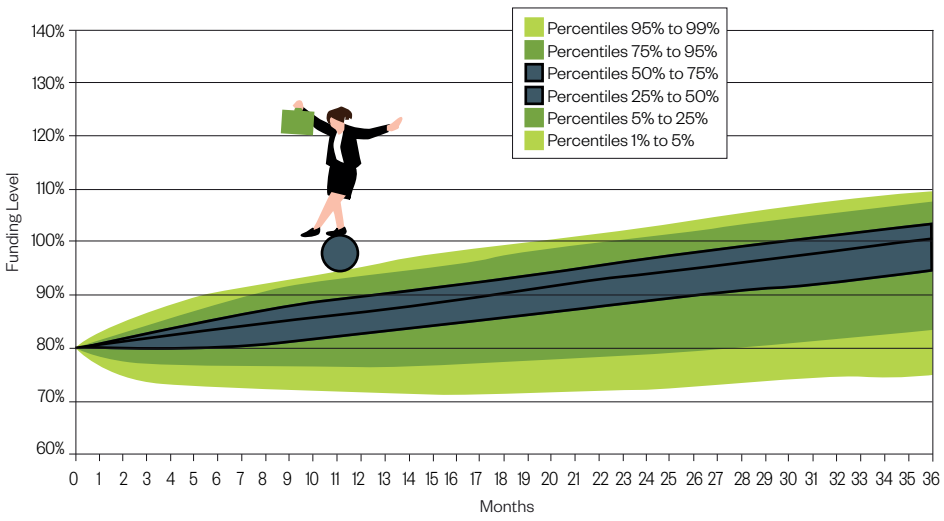


Figure 4: Funding level projection over 36 months under the dynamic asset-rebalancing strategy



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By Steve Waddington
Portfolio Manager, Multi-Asset Strategy Group, Insight Investment

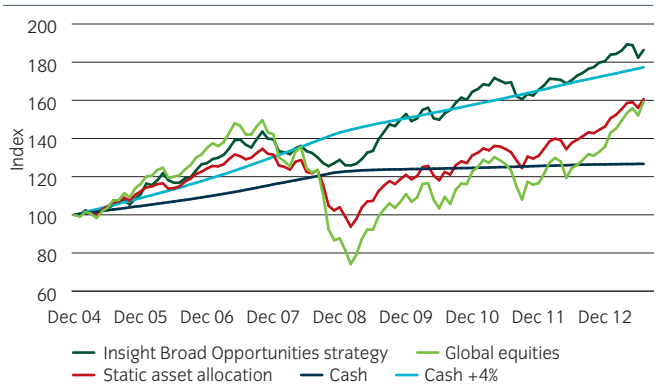
The Insight Broad Opportunities strategy has applied its approach for over eight years, and its track record stands up to scrutiny. Remembering that past performance is not a guide to future performance, we believe its success is based on three factors: it is underpinned by Insight's absolute return mind-set; it uses market-leading portfolio construction techniques in aiming to achieve attractive, reliable performance; and it is transparent, giving our clients the ability to assess the strategy over time. In considering these factors, please note the value of investments and any income from them will fluctuate and is not guaranteed (this may be partly due to exchange rate fluctuations). Investors may not get back the full amount invested. We believe these factors have led the strategy to perform well compared with global equities investments (see chart).

At Insight, we run several successful absolute return strategies which invest in equities, fixed income, currency or multiple assets. This has led to a sharp focus on precise risk-targeting that aims to help our portfolios participate in market upside while limiting exposure to downside. The Insight Broad Opportunities strategy benefits from this mind-set and the tight risk controls that have been developed across the business: crucially, they have helped the strategy to achieve lower volatility than mainstream equities since launch.

Supported by this broader culture at Insight, the portfolio construction techniques at the heart of the strategy aim for diversification that both contributes to positive performance and reduces risk. Using proprietary measures and analysis from across the business, we invest dynamically across equities, fixed income, real assets and a variety of total return strategies to access many sources of potential returns. We can rapidly shift the strategy's investments to respond to changing market conditions.

This flexibility means the strategy can benefit from exposure to market-based returns as well as non-directional, or less directional, risk. This can help to maintain its performance. For example, 2011 was a difficult year for equity markets, but exposure to non-directional risk through various total return

Performance of Insight Broad Opportunities strategy



Source: Insight Investment. Data from strategy inception on 31 December 2004 to 31 July 2013. Returns rebased to 100. Strategy performance gross of fees and in GBP terms. Global equities: MSCI World index in local currency terms. Static asset allocation: 60% equities (MSCI World index in local currency terms), 40% bonds (JP Morgan Government Bond Index, GBP hedged). Cash: 3-month GBP Libid.

strategies helped the portfolio to outperform mainstream equity investments. This was also beneficial in the recent market correction in May and June when cross-asset correlations spiked. To achieve this, the strategy may use derivatives for investment purposes. While this is not intended to cause more frequent changes in the strategy's value or increase its risk profile, derivatives are inherently volatile and the strategy may be exposed to additional risks and costs as a result.

Finally, we make sure that the strategy is transparent. We provide detailed information on current holdings and strategies to our institutional clients, as well as attribution statistics and information, to help them understand exactly how we invest. Many of our institutional clients have a responsibility to demonstrate that we are managing their assets in their interest, and we are committed to helping them do so. For example, for insurers, this includes providing detailed look-through reporting and analysis consistent with the anticipated future requirements of Solvency II.

Based on the above, we believe we have the tools to enable the Insight Broad Opportunities strategy to achieve its objectives, and that our management team has the stability, skill and experience to use them in aiming to achieve attractive and reliable returns.

For more information see www.insightinvestment.com

SEPTEMBER 2013

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MASTERING THE CORRELATION MATRIX

Phil Joubert and **Stephen Langdell** explore the challenges of setting valid correlation matrices for risk modelling

A correlation matrix is used by actuaries in a variety of settings, for example in insurance capital modelling. It is central to risk calculations, as it specifies correlations between all pairs of risk factors being modelled. Correlation matrices can be used directly to combine stand-alone risk capital requirements, for example in the Solvency II Standard Formula calculation, or in specifying copulae in more complex capital models. Sometimes a matrix 'looks like' a correlation matrix but isn't one mathematically, and we need to be able to 'fix' these matrices.

Correlations between variables vary between -1 (perfect negative correlation) and +1 (perfect positive correlation). The correlation of a variable with itself is +1, and the correlation between variables X and Y is the same as between Y and X. We deduce then that for a square matrix to be a correlation matrix, it must be symmetric, have elements in the range (-1,1) off the main diagonal and 1 on the main diagonal.

There is a fourth requirement, though, and more subtle – the matrix has to be 'internally consistent'. If we know the relationship between variables X and Y, and Y and Z, we should have an idea of the relationship between X and Z. This is where supposed correlation matrices often break down.

Why a matrix might be broken

Correlation matrices in some applications (e.g. portfolio risk) are calculated from historic data, but rarely in a consistent way. Data might be missing because a particular stock didn't trade on a given day, or a particular market was closed, or because the company didn't exist until five years ago. Instead correlations are calculated pairwise, and then put into the form of a symmetric matrix. There is no guarantee that this matrix satisfies the consistency requirement.

In insurance, lack of data means that a firm's correlation matrix is frequently set, at least partly, by 'expert judgement'. Managers might be asked to set correlations between risk factors as {high, medium, low, none, low negative, medium negative, high negative} = {0.75, 0.5, 0.25, 0, -0.25, -0.5, -0.75}. Even the technically inclined will struggle to keep the resulting matrix consistent for a matrix of more than a few elements. For a typical case with hundreds of risk factors this is almost impossible.

Whatever the origin of the problem, we are often presented with a broken correlation matrix and asked to fix it. We'll use a simple example to illustrate. The offending matrix is:

1	0.95	0
	1	0.95
		1

In this case it is clear that there is no consistency – how can X be 95% correlated to Y, Y 95% correlated to Z, and X and Z be uncorrelated? This is not sensible.

The theory

Before we attempt to fix this broken matrix, a brief mathematical interlude is needed. Recall that an eigenvector of a square matrix C is a non-zero vector, v, which satisfies the equation:

$$Cv = av$$

for some scalar a, known as the eigenvalue of C corresponding to v.

Mathematically, the consistency requirement implies that the correlation matrix must be 'positive definite', which is equivalent to the requirement for the correlation matrix to have non-negative eigenvalues. (These concepts are linked by the existence of the so-called Cholesky decomposition of the matrix – but that is one for another time.)

Now a symmetric matrix C can be decomposed as

$$C = Q\Lambda Q^T$$

where Q is the matrix whose columns are the eigenvectors of C, Λ is a matrix with the corresponding eigenvalues on the diagonal and zero elsewhere and Q^T is the transpose of Q. This is called the 'eigen-decomposition' of the matrix, and any decent statistical or numerical package should be able to do it.

Patch it up

A quick and dirty method of patching up our broken matrix exploits this property of positive definiteness. We can attempt to fix the matrix by calculating the eigen-decomposition of the matrix, setting any negative eigenvalues to zero, and then reconstructing the resulting matrix. So we form $Q\Lambda'Q^T$, where Λ' is the same as Λ, but with negative entries replaced by zero, and scale the result to give a matrix C' with ones on the diagonal.

For our matrix the eigenvalues are {-0.3435, 1.0000, 2.3435}. Setting the first negative entry to zero and calculating C' as above results in:

1.0000	0.73454	0.077908
	1.0000	0.73454
		1.0000

Find the closest correlation matrix

While the above method works, it is a bit arbitrary – we don't really understand its relationship to the original matrix. On the other hand, the closest correlation matrix method (Higham, 2002) explicitly minimises the distance between the original matrix and the 'fixed' matrix. In this case we define the 'distance' between two matrices as the square root of the sum of the squared differences of their elements:

$$||x,y|| = \sqrt{\sum_i \sum_j (x_{ij} - y_{ij})^2}$$

This is called the Frobenius distance. Finding the matrix that minimises this distance while preserving positive definiteness can be done numerically.

This results in the matrix below:

1.00000	0.75217	0.13151
	1.0000	0.75217
		1.00000

which is similar to the matrix we found in the previous section. A quick computation of the Frobenius distance using the formula above will show that this matrix is indeed 'closer' to the original.

Having an analytic framework to hang our method on means that we can introduce more flexibility. Suppose the manager setting the correlations miscommunicated his or her intentions, and that the 0 in the matrix should have been interpreted as "I don't care". In this case we can add a weighting to the algorithm, so that the important correlations are disturbed as little as possible. Assigning appropriate weights we now get

1.00000	0.94044	0.077908
	1.00000	0.94044
		1.00000

Complete the matrix

The last scenario occurs often in practice, especially when dealing with large matrices. Matrices might be set in 'blocks' by different business units, and need to be combined, or managers may be agnostic about the values of certain correlations, but certain about others. These are known as matrix completion problems.

Given the matrix:

1.00	0.95	?
	1.00	0.95
		1.00

we can set the missing entry to the product of the known correlations, giving:

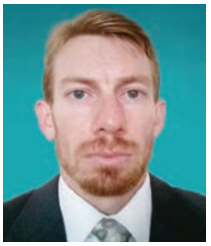
1.00	0.95	0.9025
	1.00	0.95
		1.00

A proof that this does result in a positive definite matrix is given in Kahl & Günther (2005), which confirms the intuition that it should work. This method can be used to combine block matrices. It also suggests an alternative method of correlation matrix construction, whereby business units are asked to provide pairwise correlations with one central random variable (say GDP growth or something similar), with all other correlations being inferred.

Conclusion

Correlation matrices are a key input to risk systems, and a major source of headaches. Technical actuaries and quants don't understand why business actuaries can't check that the matrices they provide are positive definite, and the business actuaries don't understand why the quants refuse to use a perfectly reasonable looking matrix. We've demonstrated a few ways out of this bind: either by finding a matrix which resembles the given matrix but which is positive definite, or by changing the method of specifying correlation matrices in the first place. These techniques are currently in use in a number of financial institutions. A

PHIL JOUBERT is an independent actuarial consultant specialising in implementation of risk models and blogs at www.not-normal-consulting.co.uk.
STEPHEN LANGDELL is a senior technical consultant at the Numerical Algorithms Group (NAG).



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Arts

PORTRAIT OF THE ARTIST

Alvin Kissoon visits the National Portrait Gallery and reviews the BP Portrait Award 2013

Art. A word, the definition of which could be the subject of an entirely different article. I put this to one side, however, to view a series of portraits, as part of the BP Portrait Award 2013 at the National Portrait Gallery.

As I entered the gallery, I was surprised to see one of my actuarial colleagues. "What brings you here?" I asked. "The rain," came the response.

There are many interactive and engaging experiences available in London this summer, so, in this ever-developing world of social media, I was concerned that an exhibition of more traditional art may have fallen by the wayside for some.

However, the annual BP Portrait Award is one of the most popular art exhibitions and attracted more than a quarter of million

Clockwise from left: Pieter by Susanne du Toit; *Kholiswa* by Lionel Smit; and *The Uncertain Time* by John Devane

"The exhibition is free, which is a huge positive, and it will undoubtedly attract big crowds"

visitors last year. Located at the National Portrait Gallery in Trafalgar Square, it's perfectly placed for a visit before going shopping. The Award is in its 34th year and reflects the best in new and innovative portraiture.

A bonus of visiting this exhibition is that you get to see the first official portrait of Kate Middleton by artist Paul Emsley, which has received mixed reviews. I thought it wasn't as poor as some corners of the press had indicated – it was certainly striking. However, I was more impressed by the portrait of Dame Kelly Holmes, the size and detail of which made it stand out in the room – surprising when the room was also occupied by the Duchess of Cambridge.

The exhibition is housed in a relatively small room for 55 portraits, with the gift shop in close proximity. Unsurprisingly, for the first Saturday afternoon of the exhibition, the venue was busy, but not uncomfortably so. I stopped in particular to see the two main prize winners.

The BP Award has a £30,000 first prize with a £5,000 commission – at the National Portrait Gallery Trustees' discretion – and a £10,000 second prize, as well as a travel award to allow artists to experience working in a different environment on a project related to portraiture.

This year, the first prize was won by Susanne du Toit for *Pieter*, a striking portrait of her eldest son. The picture, set against a yellow-green background, has Pieter sitting on a chair with one leg crossed. It is a bold setting, but one surprisingly lacking in emotional resonance.

The £10,000 runner-up prize was won by John Devane's *The Uncertain Time*, a group portrait of his children Lucy, Laura and Louis. This picture took centre stage and was similarly striking, but again I felt lacked sufficient emotional connection to be groundbreaking. I could not fault the artists for their technique and quality however. There were many pieces which showed exceptional skill.

Also on display were the 2012 winners' portraits and a 'next generation' award. The most popular pictures were those which could have been mistaken for photographs, and there were plenty of comments to that effect.

Personally, I prefer paintings that elicit an emotional response, but also have a good story attached to them. Unfortunately I found the exhibition lacking in that respect, but there were quite a few interesting pieces, in particular Greg Kapka's *Heterochrome* – a picture of his friend, magnifying glass in hand amplifying his more light-coloured eye – and Jamie Routley's *Inner Dialogue*, a self-portrait.

A nice touch was the visitors' choice award, where a prize is on offer for the highest number of votes – usually a clear indication that public preference differs greatly to the judges' views. After voting for Kapka's work, I patted myself on the back for an informed and independent decision. However, I was taken aback to see the picture I had chosen was on the front of the programme in the gift shop. I began to wonder about the sophistication of my artistic sense, but reassured myself this was the picture I liked best.

So, is it worth a visit? One thing to mention is that it took less than an hour to see all the pictures, as they are all displayed in one room. The exhibition is also free, which is a huge positive, and it will undoubtedly attract big crowds.

There were certainly a great many talented artists on show, and it was exciting to see their different methods of portraiture. The lack of emotional connection could perhaps be attributed to a lack of storyline to some of the artworks. Despite this, as my colleague and I discovered, it is a good way to spend a rainy afternoon.

BP Portrait Award 2013 at the National Portrait Gallery runs until 15 September. Late showings on Thursdays and Fridays (www.npg.org.uk)

JOHN DEVANE / LIONEL SMIT / SUSANNE DU TOIT

puzzles@theactuary.com

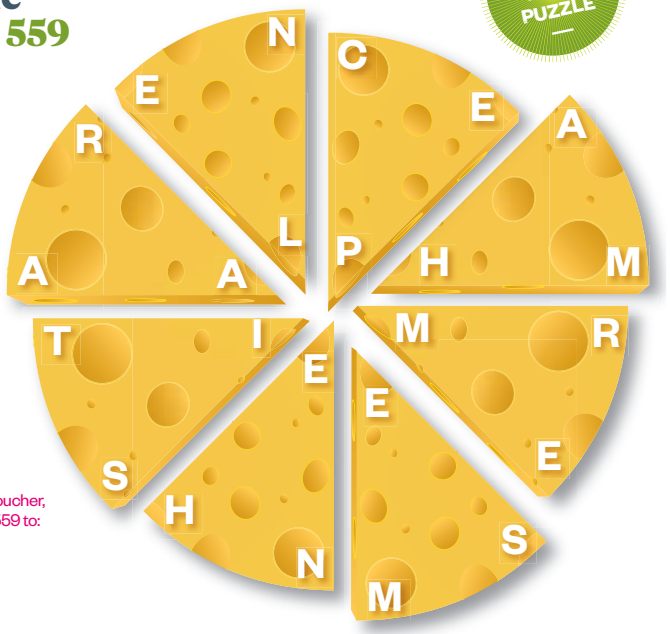
Puzzles

Mensa
The High IQ Society
HAVE YOU GOT WHAT IT TAKES?
For information on IQ testing in your area, visit www.mensa.org.uk

Piece of the pie
Mensa puzzle 559

MENSA PRIZE PUZZLE

Take one letter from each sector to give the name of a Swiss cheese. Take a further letter from each sector to give the name of an Italian cheese. The remaining letters will give the name of a British cheese.
What are the three names?



For a chance to win a £25 Amazon voucher, please email your solution to puzzle 559 to: puzzles@theactuary.com by Monday 16 September

TERMS AND CONDITIONS The prize will be awarded for the first correct entry drawn at random from those received before the closing date. The winner's name will be announced in the next edition. Please note, the puzzle editor's decision is final and no correspondence will be entered into. We reserve the right to feature the winner's name in *The Actuary*. Your details will not be passed to any third party in connection with this draw.

Careful with the majors!
Bridge puzzle 36

♠AQJ1093
♥983
♦Q1082
♣_ _

N
W E
S

♠K
♥AK762
♦A9
♣AQJ74

This hand came up recently in a Simultaneous Pairs for Kidney Research.

You are South and end up in 6♥. West leads a trump.

A. How do you guarantee your contract when outstanding trumps are 3-2.

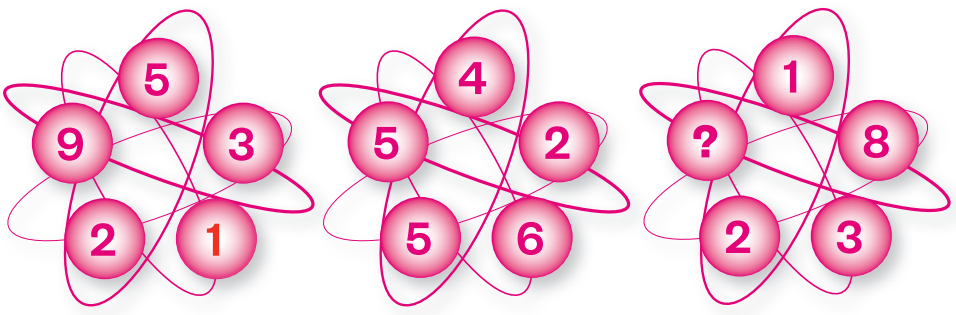
B. If instead West had led a spade, what is your only hope for the contract?

Bridge puzzle provided by David Lampert

Digital dilemma
Mensa puzzle 560

Which number is the odd one out?

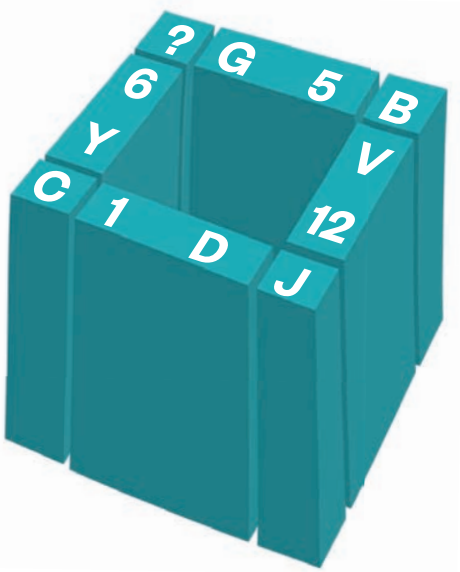
Neutron number
Mensa puzzle 561



What number should replace the question mark?

Cubic ruse
Mensa puzzle 562

What letter should replace the question mark?



SOLUTIONS FOR AUGUST 2013

S	H	A	N	G	H	A	I	■	I	C	E	T	U	B
O	■	I	■	A	■	F	■	N	■	O	■	O	■	E
V	E	R	T	I	G	O	■	E	A	R	L	O	B	E
R	■	L	■	N	■	R	■	U	■	N	■	L	■	F
A	L	I	I	■	S	E	E	R	S	U	C	K	E	R
N	■	K	■	C	■	■	■	O	■	C	■	I	■	O
■	A	E	R	O	N	A	U	T	■	O	C	T	A	L
M	■	■	■	■	N	■	R	■	I	■	P	■	■	L
A	E	G	I	S	■	R	E	C	E	I	P	T	S	■
N	■	R	■	E	■	D	■	■	■	A	■	E	■	W
G	R	O	U	N	D	W	O	R	K	■	N	A	S	H
O	■	S	■	T	■	O	■	I	■	S	■	C	■	I
P	A	S	S	E	U	L	■	G	E	E	G	A	W	S
I	■	E	■	R	■	F	■	O	■	M	■	K	■	H
E	L	D	E	S	T	■	F	R	A	I	L	E	S	T

© Nylfia

Congratulations to this month's winner – Ken Nicholas of RSA Group UK

Unusually literate Crossword puzzle 02

The shaded cells, in clockwise direction, starting at the mid-point of the left-hand edge of the grid, contain the words of the Profession's sadly departed strapline (definite article excluded) and of FIAs, trainees flunking acumen test (6, 9, 5, 2, 6).

MENSA PRIZE PUZZLE

Name game Mensa puzzle 555

What letter should appear in this sequence?

Y	S	H	S	R	N	S	?

ANSWER: E. They are the last letters of the planets from the sun – MERCURY, VENUS, EARTH, MARS, JUPITER, SATURN, URANUS AND NEPTUNE.

Congratulations to this month's winner – Ian C Brown

Melody maker Mensa puzzle 556

Rearrange the letters of

'RUSH LED BY PIANO'

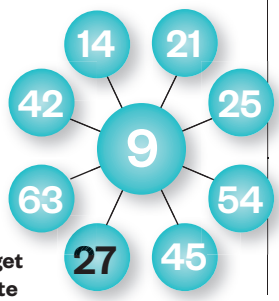
to give the title of an American musical composition.

What is it?

ANSWER: Rhapsody in Blue

Wheel value Mensa puzzle 557

What number should replace the question mark?



ANSWER: 27 In each of the circles at the top, add the two digits together and multiply this number by the middle number to get the number opposite

Small change Mensa puzzle 558

A charity collection has raised £22.27. It is made up of four different denominations of coins and the largest denomination is £1. Unusually, the collection contains exactly the same number of each coin. **How many of each coin is there and what are their values?**

ANSWER: 17 of each of 1p, 10p, 20p and £1

Bridge puzzle 35 Is Dummy Right?

What rights does Dummy have? When playing friendly bridge, you can decide your own rules but in the following, you are Dummy, playing in a club or a competition.

1. Spades are trumps. A defender leads a heart and Declarer trumps.
a) Are you allowed to say 'having no hearts, Partner?'? Yes. Dummy can ask Declarer, the defenders can ask each other, Dummy can't ask a defender!
b) Before the next trick is played, Declarer realises he does have a heart. **What happens?** Declarer simply puts back the spade and plays his heart. No penalties.

2. Half-way through a hand, you (as Dummy) notice there has been a revoke. Nobody else notices. Can you:
a) Point it out there and then? No
b) Point it out at the end of the hand? Yes and should call the Director.
c) Never say anything? At the end of the hand, Dummy's rights are now equal to those of the other 3 players

3. Declarer leads from the wrong hand.
a) Can you point it out? If Declarer is about to lead but hasn't yet done so, yes. Dummy is allowed to prevent an error. However, once the card is played, Dummy must remain silent. (NB Dummy usually doesn't remain silent!)
b) Can either defender accept it? Yes but they can't consult
c) A defender points out that Declarer has led from the wrong hand. **Does Declarer simply replace the card and lead from the correct hand?** If the Defenders don't accept it then yes.

4. The opening lead is made and you have a singleton. **Do you play it as you put your cards down or wait until Declarer tells you to?** Dummy must always wait until told what to do.

5. Your hand is due to make the next lead. You hold ♠KQ3. Declarer says 'play a spade please'. **Do you:**
a) Play the K♠? No
b) Play the 3♠? Yes
c) Play whichever card you like? No
The rule is that if Declarer doesn't specify a rank, the rule is that the lowest card is played.

6. Declarer leads a spade and you have to discard from ♥752 and ♦Q4. Declarer says 'Discard anything'. You throw 2♥. A defender says 'Discard Q♦'. **What do you do?** If Declarer doesn't specify a suit or a rank, the opponents are allowed to tell Dummy what to play.

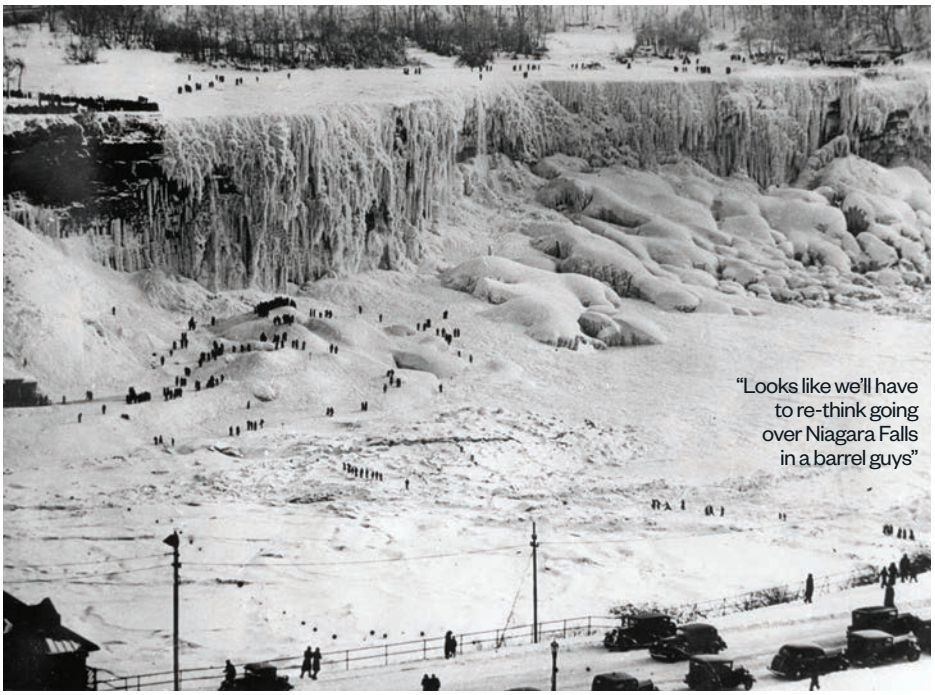
Bridge puzzle provided by David Lampert

SHUTTERSTOCK

BOOK REVIEW

Invisible in the storm: the role of mathematics in understanding weather by Ian Roulstone and John Norbury

PUBLISHER Princeton University Press
ISBN-10 0691152721 **ISBN-13** 978-0691152721
RRP £24.95



"Like meteorologists, actuaries use past experience with justified theoretical detail"

We are all used to seeing weather forecasters attempt, and sometimes fail, to indicate what we might expect for tomorrow, and perhaps even for next week and further. Sometimes, as Michael Fish found to his cost in 1987, it can go terribly wrong.

This very readable book provides an excellent insight into the history of forecasting the weather, with a considerable, but not too challenging, mathematical bent.

The book uses 'tech boxes' for those who wish to follow the more scientific reasoning, while enabling the more casual reader to enjoy the subject in an easy fashion. Simple examples are introduced and then just enough is added to illustrate how predicting can quickly become complicated. For example, imagine a second arm is attached to the end of a single pendulum. Without it, the linear motion is very easy to ascertain, but the second arm makes the motion non-linear and exceedingly difficult to assess.

The history of forecasting weather is dealt with in detail. The origins go hand in hand with developments in mathematics and physics. Many pioneers who had a part to play in weather forecasting are familiar names in other fields as well, including Euler (fluids) and Lorenz (chaos), but some are associated just with weather forecasting such as Bjerknes, Rossby and Charney. The laws of physics we all learned at school are closely connected with justifying weather forecasting theoretically.

The many similarities to actuarial work include the importance of knowing and understanding the theoretical background to the methods used. Like meteorologists, actuaries use the combination of past experience with justified theoretical detail to predict future events. We also sometimes get the answers wrong, but the process of understanding why is useful in improving techniques. We both use models, and judge the 'method skill', or appropriateness and accuracy, of the model. As we all know, "all models are wrong, but some are useful". The authors conclude that it is necessary to get the most out of mathematics to improve models of future weather.

There was an early recognition of the impossibility of accurate predictions in every circumstance, but also a realisation that very useful forecasting could be performed, and so significant efforts were made to ensure that there were intensive theoretical and practical advancements. The utter complexity of the Earth's atmosphere, the plethora of physical laws that impinge upon the science and the problem of interaction, or feedback, all combine to make this a challenging subject.

Weather forecasting is compared with other historical interests such as astronomy, which seem to have had relatively more practical success. Owing to the massive bodies involved in the main astronomical calculations, as compared to their environment, this greater success was inevitable.

The different characteristics and approaches are clearly explained in the book. It is to the credit of such pioneers in centuries past that they were able to use the science of theoretical mathematics that was still developing to answer some of the practical issues related to weather forecasting.

Clearly, the advent and development of computers widened the scope of weather forecasters to produce more accurate forecasts, although by this stage their approach had changed and rather than attempting to predict the actual weather, they acknowledged that a more useful contribution was to state the likelihood of the weather being as they predicted, and to highlight the scope for uncertainty.

Climate change is discussed in the book, albeit more briefly than desired. The authors stress just how uncertain the effects of such changes would be on the Earth's weather patterns.

The future of weather forecasting indicates that the current improvements of models, computer power, mathematical techniques and a better understanding of the forces that affect the weather will contribute to make forecasting more reliable. Over the past 25 years, forecasts of the actual air pressure at sea level, which is an appropriate measurement of the reliability of weather forecasts, have improved significantly. But it seems that the sheer quantum of variables that affect the weather and the unpredictability of their interaction, or feedback, means this improvement will become less pronounced over time.

There will never be truly accurate local forecasts, or forecasts well into the future, but there will be much better, and more reliable, general forecasts.

● **Colin J W Czapiewski** is an actuary, consultant and non-executive director

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Student

Jessica Elkin encourages fellow students to keep on top of their 'learning log' to avoid a lot of work later on

LOGBOOK LETHARGIC OR DILIGENT DIARIST?

Avid readers, you may have noticed that I tend to write a lot about things not happening. Summer, exam revision, studying in general. I give the impression that my brain is rife with inactivity and sloth. (It's not, faithful employer!) Now, I'm not one to be inconsistent, so this month will be no exception.

'WBS' must ring a bell, surely. Weak brain syndrome? Whale breeding systems? Whisky-buying syndicate? Alas, no! It stands for 'work-based skills', and if you're a highly efficient sort then you're probably on top of it already. On the other hand, I know quite a few people who have aced – or at least overcome – all of the exams and are now trying to remember what on earth they have been doing over the past five years.

Sorry, work-based what? What is that?

For the uninitiated, 'work-based skills' is the term used to denote some of the final requirements actuarial students must meet. That is to say, in order to qualify as an actuary, you don't just need to pass all the exams – which is hard enough, if you ask me. You also need to submit a 'learning log' of all your training from when you started your traineeship, as well as a set of essays on various relevant topics of your choosing. You should be assigned an official work-based skills supervisor who will probably be a qualified actuary in your company – he or she will sign off your log and essays and oversee your development as a budding actuary.

There is a section about work-based skills on the IFoA's website with more detailed information on all of this.

The work-based skills requirement was introduced in 2004; all members who joined the Institute of Actuaries on or after 9 June 1975 are required to have at least three years' experience of actuarial work before being admitted to the Fellowship.

The idea behind the work-based skills requirement is that the exams are all very theoretical and that practical experience should be gained before one can call oneself an actuary. Otherwise any Tom, Dick or Harry could get IFoA accreditation without ever having practised at all, and no one wants that.

PHIL WRIGGLESWORTH

Sounds simple – you must be right up to speed

Personally, I got as far as printing out some example essay questions and circling the ones I liked the look of. I even carried those around with me for a while in case inspiration struck and I had a sudden urge to sit down and pour my actuarial heart out. That's marginally better than nothing.

The problem with slacking is not only the slog of completing all of this work at in one go, but also actually remembering enough to fill in the training log. I do recall an amusing early IT session where a colleague of mine accidentally invited everyone in the firm to an event he'd created, including some jocular narrative that had been intended for another student. But I sense that's not quite what the learning log is for, although it did teach me a thing or two about exercising caution.

For those who either didn't start their logbook right away, or did absolutely nothing until they'd finished their exams, Outlook calendars can be redeemers. A quick search can reveal all the training sessions from yesteryear. The problem, however, is that it will not be immediately apparent what occurred during those sessions.

Another idea is to ask others from the same graduate intake (if applicable), or to simply request from your firm a list of routine training offered to new starters. These are merely stopgaps though – prevention is certainly better than cure, and starting early would avoid all the hassle later.

Don't wanna miss a thing

If it's already too late for you, then this is not a very helpful student page. Instead, you could pass the message on to some fresh-faced students in a heroic bid to save them. A bit like Bruce Willis in *Armageddon* when (spoiler alert!) he remains on the asteroid to perish while Ben Affleck escapes. Or, you could sit back and watch with bitter satisfaction as they make the same mistakes you did.

If you're still in the early stages of your road to qualification, however, it might be worth a pitstop to allow you to get on with this work-based fun post-haste. A

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Moves

Mercer has appointed **Niall Clifford** as a principal within its growing financial strategy group, bolstering its financial institution consulting offering. Clifford joins from KPMG in London and is a qualified life insurance actuary with over 11 years' experience in the insurance industry. Having provided consulting advice to insurers and other financial institutions at KPMG, he has extensive experience of working on cross-border engagements in the UK, Europe and North America. He has particular expertise in asset liability management and advising clients on Solvency II, asset allocation, and capital and risk optimisation. Prior to KPMG, Clifford was a manager at Deloitte where he provided actuarial advice to insurers and re-insurers. He qualified as an actuary with Aviva in Ireland where he worked across a variety of areas in the life insurance business.

Jeff Hunt has joined **Xafinity Consulting** as deputy managing director, and in April 2014 will take over from managing director Robert Birmingham, who will become executive chairman. Hunt has over 20 years' experience in the pensions industry and joins Xafinity from TradeRisks where he was managing director. Before that Hunt worked for eight years as a partner at KPMG.

Scott Mitchell, a principal at **Milliman**, has transferred to

Milliman's London life practice to focus on M&A and other transactional activities for life insurance clients. Mitchell previously managed Milliman's Zurich life practice since 2009 where he advised local and multinational clients. He has over 15 years' experience in the global life insurance industry.

First Actuarial has appointed **David St. Cyr** as a corporate actuary in its Tonbridge office. St. Cyr has

joined to support and promote the launch of First Actuarial's newest product FirstPlan. He started his career at Bacon Woodrow and de Souza in Trinidad and Tobago before moving to London to join HSBC Actuaries and Consultants Ltd.

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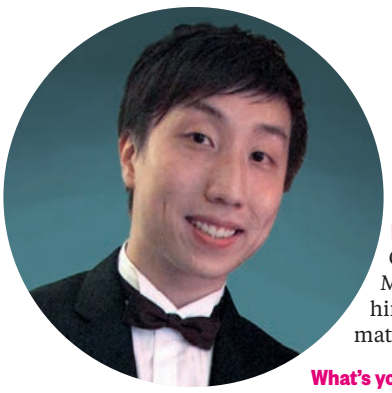
ACTUARY OF THE FUTURE

XAVIER LO



Employer and area of work Marsh UK, Marsh Business Analytics.

How would your best friend describe you? The best friend in the world.

What motivates you? Numbers, spreadsheets and models.

What would be your personal motto? It's fine to make mistakes, just don't make them while people are watching.

Name five dream guests you would invite to your dinner party? Tim Harford, Steven Levitt, Stephen Dubner, Malcolm Gladwell, Dan Ariely.

What's your most 'actuarial' habit? Trying to model every problem that I encounter in life.

If you could learn one random skill, what would you learn? Breakdancing.

Favourite Excel function? SumProduct – it's more versatile than it looks.

How do you relax away from the office? Making ice cream with my ice cream maker while playing on my Xbox.

Alternative career choice? Pop star, but realistically – maybe a forensic scientist.

Tell us something unusual about yourself I hate drinking tea with sugar.

Greatest risk you have ever taken? Taking a motorcycle-taxi on a one-day business trip in Paris because a normal taxi would have taken too long.

If you could go back in history, who would you like to meet? Carl Friedrich Gauss (a.k.a. Prince of Mathematicians), to tell him to publish all his hidden mathematical findings.

What's your most treasured possession? My laptop – I have too many things in there. Concentration risk.

What are the top 3 things you would like to achieve in your lifetime? Take a (1) premium economy class, (2) business class, and (3) first-class flight without having to personally pay for it.

If you ruled the world, what would you change first? My clothes – I would put on a king's outfit.

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GENERAL INSURANCE ROLES

CHIEF ACTUARY
£130k - £165k Basic, London

Lloyd's syndicate is looking for a Chief Actuary to lead their actuarial function. The right person will have experience across capital, pricing and reserving and should be happy doing technical work. There is scope to continue to grow the team whilst working closely with the CFO on a day to day basis. **William@highfinancegroup.co.uk**

HEAD OF CAPITAL MODELLING
£140k - £165k Basic, London

World leading general insurer with offices around the world is looking for a Head of Capital to run their team in London. The role will report to the CRO and requires someone with both the gravitas and capital background to run the team. The ideal person will have igloo experience and be looking for the next step in their career. **William@highfinancegroup.co.uk**

EXECUTIVE DIRECTOR – INSURANCE STRATEGY
Up to £180k Basic, London

This leading Consultancy requires a Director level individual to join their Insurance Advisory team. You will work across all industries, identifying market trends and employing strategy directive for the deployment of effective resource to client projects and streamlining the Insurance proposition offered to prospective clients. To be successful you will have a proven track record in this area and be looking to lead a team with high visibility within the market. **James@highfinancegroup.co.uk**

CAPITAL MODELLING ACTUARY
Up to £90k Basic, London

A well known Lloyd's syndicate requires a nearly / newly qualified Capital Modelling Actuary to implement the internal model into the wider business. This will include bedding the model down into business as usual work, as well as assisting in the Risk Appetite and Business planning. The role includes the development of junior team members. To be successful you will have a grounding of non-life Capital modelling and be looking to take on more responsibility. **James@highfinancegroup.co.uk**

SYNDICATE RESERVING ANALYST
£45k - £65k Basic, London

Rare opportunity to join the Reserving team of this market leading Lloyd's syndicate, working closely with the Head of Reserving. This position will provide you with a broad insight into the business' reinsurance portfolio, and the chance to progress towards heading up your own area within the Reserving function. To be successful you will be part-qualified and have previous non-life reserving experience. **Chanelle@highfinancegroup.co.uk**

COMMERCIAL PRICING ANALYST
£40k - £60k Basic, London

Join this thriving Lloyd's syndicate, predominantly focusing on pricing, liaising closely with the Actuarial and Underwriting teams. You will take on early responsibility by working independently, whilst gaining expertise from more senior Actuaries. This is the chance for a part-qualified Actuary with non-life experience to develop a strong pricing skill set within a growing business. **Chanelle@highfinancegroup.co.uk**

ACTUARIAL ANALYST
£35k - £55k Basic, South Coast

Are you a mid-to-senior level student keen to swap the sirens of London for the breaking waves of the beach? This South Coast composite insurer is looking to grow its GI fucntion, and requires candidates for their Capital and Reserving teams. Experience in Capital modelling is desirable, with working knowledge of Igloo or ReMetrica an advantage. Catastrophe Modelling or ESG experience is beneficial. **Jack@highfinancegroup.co.uk**

PRICING MANAGER
£60k - £100k Basic, North West

This rapidly expanding General Insurer is looking for a qualified Actuary to lead the Pricing team. You will be leading a team of six Actuaries across a variety of levels and be a key decision maker, working directly with the Chief Actuary. Prior managerial experience is preferred and exposure within personal or commercial lines pricing is essential.
Sophia@highfinancegroup.co.uk

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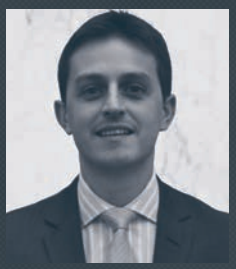
Established in 1996, Darwin Rhodes is an award winning specialist recruiter operating within niche areas of the Insurance and Finance sectors and is part of the Dryden Human Capital Group. Working from offices in London, Zurich, Hong Kong and Sydney; our Actuarial Consultants service customers across Life, Non-Life, Pensions, Investments and Healthcare with a portfolio of clients including Insurers, Reinsurers, Regulators, Consultancies and Ratings Agencies.

WELCOME – ADAM GOODWIN

We are delighted to welcome Adam Goodwin to the Darwin Rhodes Actuarial Team. A highly experienced actuarial recruiter with a proven track record within the Life Insurance sector, both in the UK and Internationally. Adam joins Darwin Rhodes as a Senior Consultant and is a significant addition to the team for the Life Insurance market.



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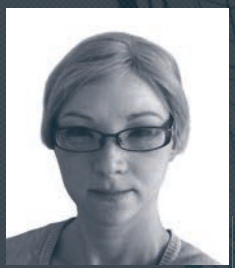

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- Europe Actuarial

E z.ali@darwinrhodes.com
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Non-Life Actuarial Student - London
Attractive Salary & Benefits Package

This multinational insurance / reinsurance company is looking to enhance their actuarial capital modelling team with the addition of a Senior Actuarial Student. Principal tasks are to undertake capital analysis and to assist in the development of the internal capital model. Other tasks include the participation in strategic projects, underwriting reviews and the development of management information. The ideal candidate is an actuarial student with relevant experience in the insurance industry and capital modelling. Good knowledge of Remetrica, VBA and MS Office would be advantageous.

Contact phu.ngoc@ipsgroup.co.uk
+44 207 481 8686

Senior Product Specialist - Edinburgh
Attractive Salary + Benefits Package

Leading Asset Manager seeks innovative, client-focused investment professional to work with clients on sophisticated strategies. With 10's of billions in pensions assets under management they are also well placed to further develop their LDI offerings. Due to growing demand, they are looking to make a key senior hire into their Edinburgh based Product Specialist team. Candidates are likely to have over 12 years' experience as a product specialist or an investment consultant, with a strong understanding of multi asset and LDI/liability hedging strategies. You will be either CFA or FIA/FFA qualified. Additional European language skills would be an advantage, particularly Nordic languages or German.

Contact david.higgo@ipsgroup.co.uk
+44 207 481 8686

Investment Consultant - Berkshire
Competitive Package

If you are an Investment Consultant that lives in Berkshire, Hertfordshire or even the west side of Surrey and are tired of the commute into London then this could be the ideal opportunity for you. A client is looking at hiring an investment analyst or junior consultant with ideally between 4-7 years experience into their practice based in Berkshire. You will be studying for the CFA or actuarial exams or will have already qualified. Candidates from a range of consultancies will be considered, however the experience must be UK based.

Contact simon.arthur@ipsgroup.co.uk
+44 207 481 8686

Reserving Actuarial Analyst - London
Attractive Salary & Benefits Package

This multinational reinsurer is looking to hire an actuarial analyst for their reserving team. The main remit is to assist in the quarterly reporting and reserving process. You will also provide support in planning, portfolio analysis and monitoring. Furthermore, the role is involved in Solvency II support. The ideal candidate will be a near-qualified actuary with experience in general insurance and reserving. Knowledge of London Market business would be advantageous. This role would suit a team player with good communication and technical skills.

Contact phu.ngoc@ipsgroup.co.uk
+44 207 481 8686

London Office: IPS Group, Lloyd's Avenue House, 6 Lloyd's Avenue, London EC3N 3ES
Telephone: 020 7481 8686 Email: actuarial@ipsgroup.co.uk

Leeds Office: IPS Group, 8 St Paul's Street, Leeds LS1 2LE
Telephone: 0113 202 1577 Email: actuarial@ipsgroup.co.uk

Investment Strategy Actuary

London

This role is a unique opportunity to be involved in the investment of one of the largest annuity funds in the UK, working across the fields of fund management, ALM and investment banking within an insurance company framework.

This is a project focussed role working across the full range of capital investment strategies employed by an international insurance group. A second key aspect will be to ensure that the team are monitoring market conditions appropriately to maximise potential opportunities.

The role holder will be required to interact with internal stakeholders at group level in order to distil specific requirements and investment targets before formulating appropriate solutions based on the feasible options available.

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Head of Actuarial, Pensions & Insurance Risk Management
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rob.bulpitt@eamesconsulting.com

Rupert Rickard
Manager of Actuarial Non-Life and Insurance Risk Management
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Overseas Opportunities

Head of Value Management – Jakarta
Dependent on Experience

Newly created role for a Qualified Actuary with significant life & health pricing experience to lead the value proposition in Indonesia for this international insurer. This is a unique opportunity as you are effectively in a start-up environment generating profitability for their corporate business. Influential leaderships skills and cultural awareness essential for this role.

Risk Analytics Manager – Hong Kong
Up to HKD 1.2m package per annum

High calibre Actuary sought by a blue-chip insurer to join their newly formed Risk Analytics team in Hong Kong. Here you will develop the risk management reporting framework. This is a fantastic opportunity to manage a high calibre team. If you're an excellent communicator and looking to take the next step up, please apply.

Senior Manager – Mumbai
Dependent on Experience

Fantastic career opportunity for a qualified life actuary with proven managerial skills to move to India. To be successful you will have expertise in MCEV and/or IFRS with a deepened understanding of Economic Capital and ideally knowledge of Prophet. First class communication and people management skills needed.

Strong Prophet Modeller – Hong Kong
Up to HKD 1m package per annum

This Asian Life Insurer urgently seeks a top class Prophet modeller with proven leadership and Life Valuation/Reporting experience to join their head office in Hong Kong. You will play a significant role in optimising and revamping their valuation approach into a new model. Excellent opportunity for your first move to Asia.

Pricing Assistant Manager – Hong Kong
Up to HKD 750k package per annum

This Global Insurer is searching for a newly/nearly qualified actuary to join their Life Pricing and Product Development team in Hong Kong. You will be able to present to senior management, have a good grounding in Prophet or AFM, as well as an excellent command of English and Chinese (Mandarin or Cantonese).

Senior Associate – Singapore
Up to SGD 100k base + benefits

Our client is seeking a nearly qualified actuary to join their General Insurance team in Singapore. If you possess strong capital modelling experience and have good working knowledge of reserving, apply now! Applicants with Solvency II knowledge highly regarded.

Clare Bethell, Senior Consultant clare@highfinancegroup.co.uk +44 (0) 207 337 8829

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Life Insurance Roles

Lead Product Actuary
£100k - £140k Basic, London

A prominent Life Insurer requires a senior Pricing and Product Actuary to lead a growing team. Focusing on product development and market innovation, you will be key in identifying sector trends and exploiting opportunities in the Life industry. Reporting to the Chief Actuary you will have dedicated resources and genuine ownership across the department. **Graeme@highfinancegroup.co.uk**

Annuities Strategy Actuary
£80k - £110k Basic, London

This leading international annuity provider is seeking a commercially aware Actuary to join their international strategy team. Focusing across the Dutch, Canadian and US markets, the role offers extensive market exposure, international travel and diverse industry interaction. Previous experience in product strategy and marketing would be highly sought after. **Graeme@highfinancegroup.co.uk**

Head of Reporting
£90k - £115k Basic, London

In this highly visible role you will take direct ownership of the Actuarial Reporting team for this progressive Life Insurer. Liasing heavily with senior management, including the Deputy CFO, you will be tasked with leading and developing the Actuarial reporting function. You will have an extensive reporting background as well as strong stakeholder and team management experience. **Graeme@highfinancegroup.co.uk**

Development Manager
£60k - £80k Basic, South Coast

This is a great opportunity for a qualified Actuary, to play a key role within this evolving systems team. You will work with Life and General insurance systems and manage a small, diverse team. If you are an experienced modeller who is good at picking up a variety of systems, enjoys a challenge and wants to improve and enhance the Actuarial systems, then this is the role for you. **Sophia@highfinancegroup.co.uk**

Solvency II Actuarial Analyst
£40k - £50k Basic, London

This role is an exciting chance to be a part of a multinational life insurer, who is at the forefront of their Solvency II implementation. This position will give you exposure to the risk factors within the company and also an overview of the actuarial team. Prior Life Actuarial experience is essential and you will be making good progress through the exams. **Sophia@highfinancegroup.co.uk**

Consolidation Actuary
£60k - £90k Basic, South West

This fast changing Life insurer requires a Consolidations Actuary to join its reporting team. Strong with-profits experience is desirable, along with a good understanding of the reporting process. This role will also require the management of at least two actuarial students and offers a good chance develop new and existing skills.
Jack@highfinancegroup.co.uk

Contract Roles

Capital Contractor
£400 - £700 a day, 3 months, London

This leading Actuarial firm are looking for an internal resource to help assist their Capital Actuary. The successful candidate will have a capital background and ideally Remetrica experience.
William@highfinancegroup.co.uk

Pricing Actuary
£50k - £75k, 6 months FTC, South West

An experienced Pricing Actuary is required to review the mortality and morbidity claims experience analysis and lead investigations into product profitability for a large UK Life insurer. This role requires profit testing experience, an understanding of Life and Pensions products and a strong background in UK Pricing. **Jack@highfinancegroup.co.uk**

Reserving and Pricing Contractor
£750 - £1000 a day, 6 months, London

This Lloyd's syndicate is looking for a qualified Actuary to work across pricing and reserving, supporting the Chief Actuary. You will work as their right hand person with the ability to troubleshoot and think outside the box putting you at a considerable advantage.
William@highfinancegroup.co.uk

Process Improvement Actuary
£ Competitive, 2 year project, South

A Life Actuary with good systems, process and valuations experience is sought for a project designed to improve the valuations and reporting processes of this UK Life insurance provider. You will liaise with senior management and business teams to design improvements and innovations. This project requires strong communication and an innovative mind. **Jack@highfinancegroup.co.uk**

Pensions & Investment Roles

Pensions & Investment Manager
Up to £75k Basic, London

Are you considering a move out of consultancy? This is a rare opportunity to take your career forward within a strategic and delivery focussed role, concentrating on investment and risk management for this DB pension fund. Working with internal and external stakeholders at a senior level, you will have a proven track record within de-risking projects, or investment consultancy. **Miranda@highfinancegroup.co.uk**

Pensions Risk Management
Up to £70k Basic, London

This is a challenging and varied role, focussing on the delivery of pensions risk management solutions. You will be responsible for project and stakeholder management, working directly with pension and investment experts. You will benefit from working in an innovative environment with industry experts and taking on increased responsibility than is typically available within a consulting environment. **Miranda@highfinancegroup.co.uk**

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The magazine of the actuarial profession

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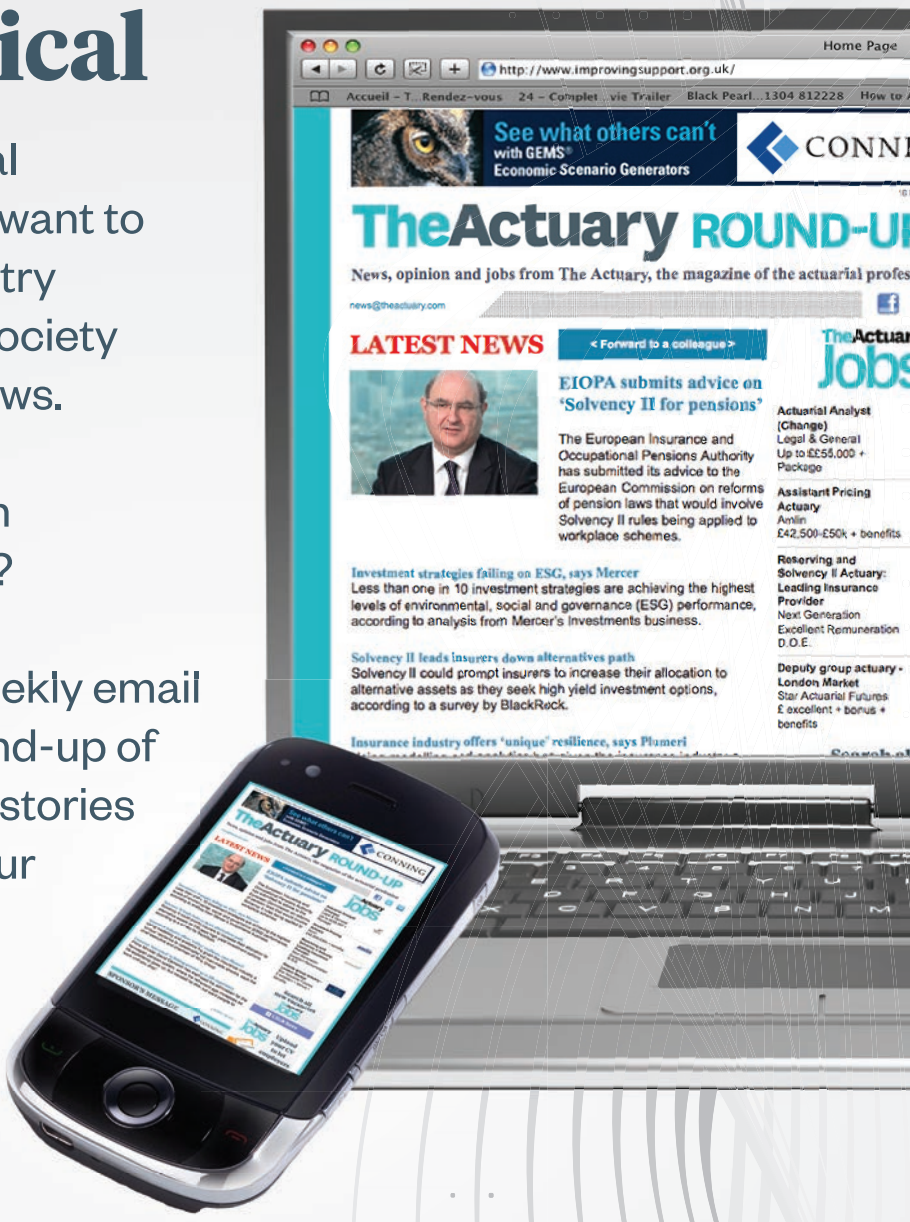
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EIOPA submits advice on 'Solvency II for pensions'
The European Insurance and Occupational Pensions Authority has submitted its advice to the European Commission on reforms of pension laws that would involve Solvency II rules being applied to workplace schemes.
Investment strategies failing on ESG, says Mercer
Less than one in 10 investment strategies are achieving the highest levels of environmental, social and governance (ESG) performance, according to analysis from Mercer's Investments business.
Solvency II leads insurers down alternatives path
Solvency II could prompt insurers to increase their allocation to alternative assets as they seek high yield investment options, according to a survey by BlackRock.
Insurance industry offers 'unique' resilience, says Plumeri
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Actuarial Analyst (Change)
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Hannover Life Reassurance Bermuda Ltd. (HLR Bermuda) is a subsidiary of the Hannover Re Group and has been operating successfully in Bermuda since 2007. HLR Bermuda writes life and health reinsurance business in partnership with our clients around the world. This business is managed by our small team of reinsurance professionals based in Bermuda.

We now seek to appoint a nearly qualified or qualified actuary as

Longevity Actuary

reporting to the Vice President – Longevity Trading.

The Role: This is a pricing role as part of a small team, encompassing a very wide range of pricing and analytical work. Such work includes analyzing experience to assist in pricing, coming up with new analytical methods to predict mortality, setting appropriate pricing bases for transactions, and building & maintaining efficient systems to keep the business slick and automated.

While the role is predominantly technical, it will also have a significant client-facing dimension and will involve travel.

The Longevity Actuary will have significant autonomy and be responsible for generating fresh ideas to continually improve the business.

Requirements:

- Must be willing to move to and work in Bermuda
- Nearly qualified or qualified Actuary
- Minimum of four years of life insurance/reinsurance experience specifically working with biometric risks
- A strong programming background, and a passion for solving complex problems
- Some experience of financial markets and pricing techniques
- Experience with statistical methods and a creative thinker
- Good written and verbal communication skills

HLR Bermuda is an equal opportunities employer. All applications will be held in the strictest of confidence and should be sent to: Jordi Posthumus, Vice President – Longevity Trading; jposthumus@hlr.bm; telephone: +1 441 535 3177.

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Chief Pricing Officer

Competitive Salary + Excellent Benefits, London

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A dynamic and driven problem-solver, you will successfully balance commercial and technical considerations while supporting proposition development and improving operational efficiencies.

Key areas of responsibility include:

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- **Technical underwriting**

Company overview

Partnership is a leading and fast growing writer of enhanced annuities and a specialist provider of financial products that offer better rates to individuals who suffer from shortened life expectancy. We are experts in medical underwriting and a leader in the retirement annuity market.

Partnership is one of the UK's fastest growing insurers, and has recently been admitted to the London Stock Exchange's main market for listed securities.

Partnership is a company where innovation and ideas are unlimited, and where talent is recognised and rewarded. Partnership has won many awards which reflect its reputation for first class service.

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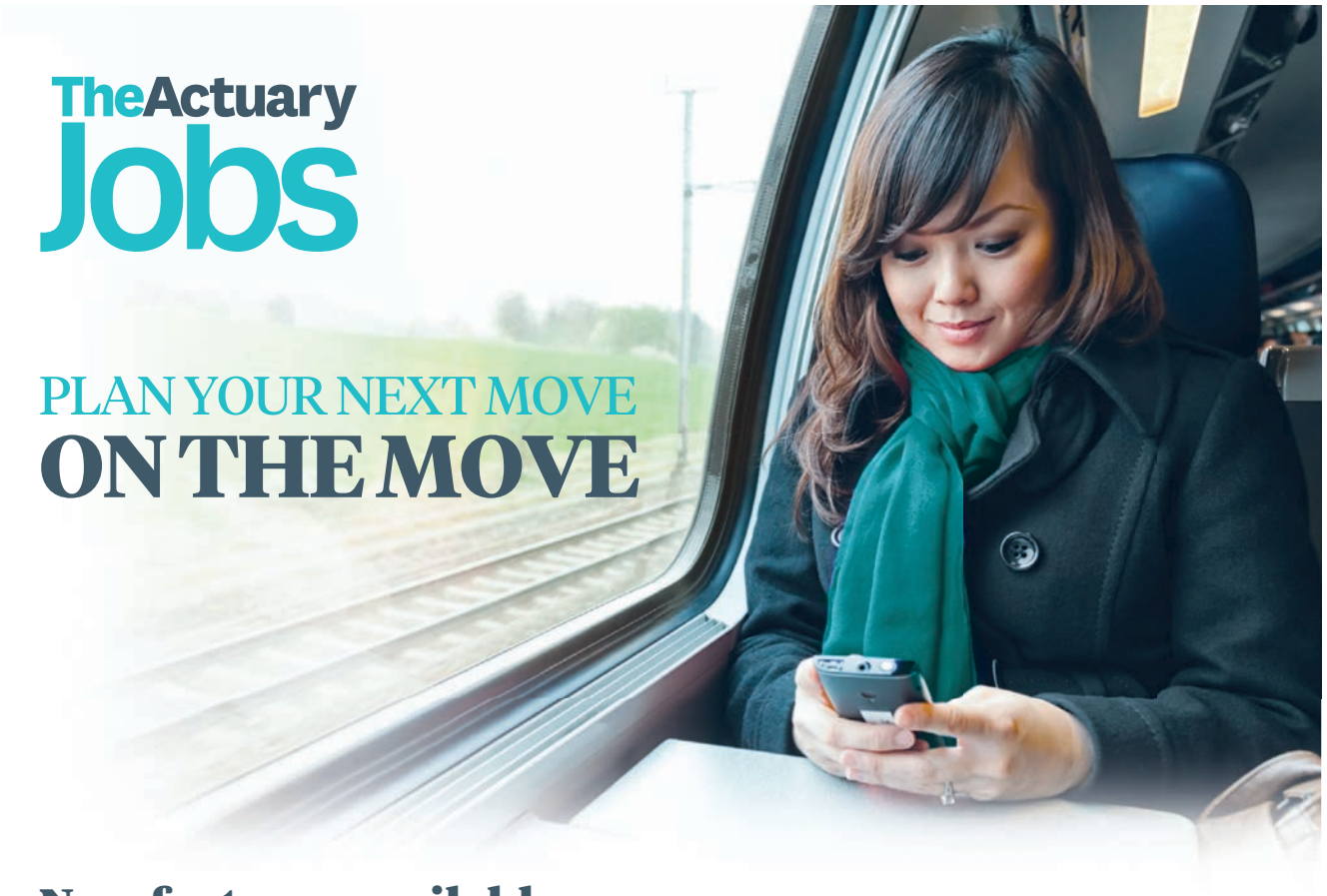

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- Financial reporting
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Pensions & Investments

- Investment strategy & manager research
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- Corporate benefits & reward
- Longevity & derisking solutions
- Liability management

Martine Scott-Gordon, AFA

Martine has experience across all levels of the market and across all disciplines. Before moving into actuarial recruitment, Martine worked as an actuary at E&Y, GE Insurance Solutions and HBoS.

☎ 020 7429 4446
✉ martinescott-gordon@puresearch.com

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LIFE LONDON STAR1585

Global insurance group seeks a qualified actuary with commercial acumen and stakeholder management skills to review and challenge market submissions for all financial reporting activity.

HEAD OF VALUE MANAGEMENT - INDONESIA

IDR excellent package

LIFE INDONESIA STAR1632

Major international financial services group seeks a qualified life actuary to develop best practices to drive value creation across all of its Indonesian entities.

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up to £100k + bonus + benefits

LIFE EDINBURGH STAR1596

Leading insurance group seeks a qualified life actuary to review, evaluate and influence strategic plans, taking into account business priorities and risks.

HEAD OF MODELLING

up to £100k + bonus + benefits

LIFE BRISTOL STAR1550

We have a diverse and exciting opportunity for a qualified actuary to lead, manage, motivate and develop an actuarial modelling team, creating and maintaining a strategic modelling platform to meet business needs.

WITH-PROFITS LEAD ACTUARY

up to £90k + bonus + benefits

LIFE SOUTH COAST STAR1568

Our client has a fantastic opportunity for a qualified life actuary to take the lead on technical matters within the actuarial reporting function, working closely with the Actuarial Function Holder.

SYSTEMS DEVELOPMENT ACTUARY

up to £90k + bonus + benefits

LIFE SOUTH COAST STAR1569

A fast-growing and successful insurance group seeks an actuarial systems expert to develop a long-term strategic vision for its systems infrastructure, whilst improving the efficiency of current systems.

PROJECT ACTUARY

up to £80k + bonus + benefits

LIFE SOUTH COAST STAR1570

Leading insurer seeks a qualified life actuary to take up a key role in its growing life business, working closely with the systems team in the transformation of the valuations and reporting areas.

REGIONAL MANAGERS - HONG KONG

HKD excellent package

LIFE HONG KONG STAR1631

Worldwide insurance group seeks qualified life actuaries with strong pricing and product development experience to implement the product strategy and pricing framework for a growing business.

MARKET ENGAGEMENT MANAGER

up to £80k + bonus + benefits

LIFE LONDON STAR1615

Market-leading insurer is seeking a qualified life actuary with sound actuarial reporting capabilities to lead market engagement on reporting cycles to ensure timely and high-quality submissions.

GROUP PROTECTION PRICING ACTUARY

up to £65k + bonus + benefits

LIFE LONDON STAR1529

Our client is seeking a qualified actuary with an excellent understanding of financial and insurance risks to provide pricing and product development support to its protection business.

CAPITAL OPTIMISATION ACTUARY

£ excellent + bonus + benefits

LIFE SOUTH EAST STAR1598

Leading life company seeks a part-qualified or qualified actuary to analyse the capital requirements on economic and regulatory bases, identifying and removing constraints and proposing mechanisms to release excess capital.

RISK ANALYST

up to £50k + bonus + benefits

LIFE SOUTH COAST STAR1578

Leading insurer seeks a part-qualified life actuary to work within its risk function, taking responsibility for 2nd line of defence, capital modelling, ORSA and analysis of actuarial methodologies.

WITH-PROFITS ACTUARIAL ANALYST

up to £50k + bonus + benefits

LIFE SOUTH COAST STAR1576

Seeking a part-qualified life actuary who has with-profits experience to apply actuarial skills and techniques, together with industry knowledge and experience, in the identification and analysis of business issues.

ACTUARIAL SYSTEMS ANALYST

up to £50k + bonus + benefits

LIFE SOUTH COAST STAR1579

This is a great opportunity for a part-qualified actuary with a good knowledge of actuarial platforms to transfer their skill set and adopt new systems within a fast-paced environment.

SOLVENCY II ACTUARIAL ANALYSTS

up to £45k + bonus + benefits

LIFE LONDON STAR1559

Our client is seeking a part-qualified life actuary with Prophet experience to analyse the Solvency II results of its EU entities and work closely with the local actuaries.

STARVACANCIES

FINANCIAL RISK MANAGER

up to £90k + bonus + benefits

LIFE SOUTH COAST STAR1623

Growing insurance group seeks a qualified actuary to take a lead role in assessing, challenging and optimising its investment portfolio. You will also play a key role in the validation of the group's capital models.

EXCLUSIVE - ANNUITY PRICING

up to £75k + bonus + benefits

LIFE SOUTH EAST STAR1629

Seeking a part-qualified or qualified actuary with an excellent understanding of the changing financial services market to seek out and implement new ideas within the annuity pricing team of a major insurer.

DIRECT ENTRY PARTNER

£ to attract the best

LIFE & NON-LIFE INTERNATIONAL STAR1600

We are working on a number of exciting direct entry partner opportunities for life and non-life actuaries of the highest calibre. Please contact us for more details.

Antony Buxton FIA
MANAGING DIRECTOR
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E antony.buxton@staractuarial.com

Lance Randles MBA
ASSOCIATE DIRECTOR
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M +44 7740 285 139
E paul.cook@staractuarial.com

Clare Roberts
SENIOR CONSULTANT
M +44 7714 490 922
E clare.roberts@staractuarial.com

LIFE NON-LIFE PENSIONS INVESTMENT

HEAD OF RISK

up to £130k + bonus + benefits

NON-LIFE LONDON STAR1591

Leading global insurer is seeking a qualified non-life actuary to lead and direct its risk function, building on a strong core of actuarial skills including experience of reserving, pricing, reinsurance and capital.

HEAD OF AUDIT

up to £100k + bonus + benefits

NON-LIFE BRISTOL STAR1595

Leading financial services company has an unrivalled opportunity for a qualified non-life actuary to lead the development and implementation of the audit response for its general insurance business.

REINSURANCE BROKER

£ excellent package

NON-LIFE LONDON STAR1530

This is a fantastic opportunity to take up a client-facing role as a reinsurance broker. You will have excellent influencing skills and the technical skills and creativity to analyse the market and design new reinsurance solutions.

PRICING. RESERVING. CAPITAL.

£ very attractive

NON-LIFE NORTH WEST STAR1633

We are working on a number of roles for non-life candidates of all levels covering pricing, reserving and capital modelling. Please contact us for more details.

LONDON MARKET CAPITAL

up to £90k + bonus + benefits

NON-LIFE LONDON STAR1545

Growing Lloyd's Syndicate seeks a part-qualified or qualified non-life actuary with ReMetrica experience and strong communication skills to maintain, run and develop its capital model.

PRICING MANAGER

up to £80k + bonus + benefits

NON-LIFE SOUTH EAST STAR1584

Leading global insurance group seeks a part-qualified or qualified non-life actuary to manage and support pricing activities, lead the development of pricing strategies and teams, and manage stakeholder relationships.

LONDON MARKET RESERVING

up to £80k + bonus + benefits

NON-LIFE LONDON STAR1621

Take up a central role in a London Market company. The successful candidate will be a team player with good communication skills, a proactive nature and strong reserving experience.

LONDON MARKET PRICING

up to £60k + bonus + benefits

NON-LIFE LONDON STAR1617

Brilliant opportunity for a part-qualified pricing actuary with strong technical and communication skills to take up an exciting role within a London Market company.

REINSURANCE ACTUARY

£ excellent + bonus + benefits

NON-LIFE LONDON STAR1605

Global reinsurance broker has an exciting opportunity for an enthusiastic part-qualified actuary with a strong personality to play a key role within a cutting-edge and fast-paced environment. Contact us now for more details.

BUSINESS DEVELOPMENT CONSULTANT

up to £110k + bonus + benefits

INVESTMENT LONDON OR SOUTH EAST STAR1574

Global professional services company seeks a talented investment consultant with strong influencing skills to develop and execute client strategies.

INVESTMENT CONSULTANT

up to £85k + bonus + benefits

INVESTMENT LONDON OR SOUTH EAST STAR1532

This is an unrivalled opportunity to join this specialist investment team where you will design, model and implement bond and derivative-based liability hedging solutions.

INVESTMENT STRATEGY ADVISOR

up to £65k + bonus + benefits

INVESTMENT LONDON STAR1606

Seeking a part-qualified actuary to provide strategic investment advice to institutional investors in the UK (predominantly UK pension schemes) and the EMEA region.

ALM ANALYST

£ excellent + bonus + benefits

INVESTMENT LONDON STAR1430

High-performing ALM team in London seeks a part-qualified or qualified actuary to join a technical and quantitative group advising insurance companies, banks and corporates on risk management.

RISK & MODELLING INVESTMENT ANALYST

up to £45k + bonus + benefits

INVESTMENT LONDON STAR1478

A fantastic opportunity for a part-qualified actuary to support an industry-leading risk modelling team in all aspects of modelling for UK pension schemes. ALM experience is required.

ACTUARIAL MANAGER

£ excellent + bonus + benefits

PENSIONS LONDON STAR1604

An exciting opportunity for a qualified pensions actuary with experience of working with trustees and Board level corporate clients to join a leading specialist corporate pensions team.

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www.staractuarial.com

ACTUARIAL PENSIONS - NEW YORK

$ excellent + bonus + benefits

PENSIONS NEW YORK STAR1614

Industry-leading financial services company is seeking qualified and part-qualified pensions actuaries to help companies address the specific compensation benefits and equity issues that surround a transaction.

MANAGEMENT CONSULTANCY

£ excellent + bonus + benefits

PENSIONS BIRMINGHAM STAR1377

Global firm seeks qualified actuary to provide management consultancy services to corporate sponsors of pension schemes. You will provide specialist advice on risk solutions and scheme financing to a wide range of clients.

IN-HOUSE PENSIONS

up to £100k + bonus + benefits

PENSIONS LOCATION UPON APPLICATION STAR1610

We are currently working on an in-house role for a high-quality pensions actuary. This is an exciting opportunity to join a passionate and award-winning team of professionals so contact us now for more details.

Louis Manson
MANAGING DIRECTOR
M +44 7595 023 983
E louis.manson@staractuarial.com

Irene Paterson FFA
PARTNER
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E irene.paterson@staractuarial.com

Joanne Young
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E joanne.young@staractuarial.com

Peter Baker
SENIOR CONSULTANT
M +44 7860 602 586
E peter.baker@staractuarial.com

Oliver James Associates

United Kingdom

General Insurance

Group Head of Capital — London
Paul Francis — £150,000 + Bonus + Share Options + Benefits

An opportunity to take ownership of the capital function for a global London market insurer. Reporting to the board, you will lead a team of 10+ actuaries and act in a business-facing capacity to help define the future business strategy.

Pricing Manager — Hertfordshire
Sarah Robins — £90,000 + Bonus + Benefits

A leading retail insurer seeks a Pricing Actuary to lead their MGA pricing team and to support the company's entry into the UK motor market. You will be a nearly or newly qualified Actuary and should have experience of managing small teams.

Pricing Actuary — London
Rick Davis — £140,000 + Bonus + Benefits

A leading London market insurance company requires an experienced Pricing Actuary to influence and direct pricing methodology across all classes of business. Strong technical and commercial skills are essential to success in this role.

Syndicate Analyst — London
Ben Pitt — Up to £55,000

Lloyd's managing agent requires a part qualified Actuary for a varied role within a growing team. Duties include Reserving, Pricing and Capital. Full exposure to senior management and excellent hands on training is guaranteed.

Contracts - GI

Capital Actuary — London
Stewart Cherry — £800 - £1000/day

A leading Lloyd's syndicate is looking for a Senior Capital Actuary to assist them on a 6-9 month contract. The ideal candidate will have excellent working knowledge and experience of; IGLOO, model build and validation within Solvency II.

Syndicate Reserving — London
Stewart Cherry — £700 - £900/day

A qualified Reserving Actuary is required to join a London market syndicate to assist them on a 6 month contract. The ideal candidate will have recent Lloyd's syndicate experience and have specialised in reserving, risk reserves and technical provisions and ResQ across Solvency II and BAU.

Life Insurance

Annuities Pricing Lead — Scotland
David Parker — £100,000 - £125,000 + Bonus + Benefits

EXCLUSIVE APPOINTMENT! My client seeks a Senior Life Actuary for a newly created lead role. Reporting to the board you will have the gravitas and management skills to develop a function in addition to strong technical pricing skills.

Head of Life & Investments Actuarial — London (City)
Clare Nash — £75,000 + Package

EXCLUSIVE APPOINTMENT: My client seeks an ambitious nearly/newly qualified Actuary to join a market leading team. Working closely with senior stakeholders this role offers broad exposure. Pricing experience sought but not a must.

Projects Actuary - Reporting/Capital — City/South
Clare Nash — £95,000 + Market Leading Package

A new role has arisen within a global organisation. The senior management team are expanding and are looking for a qualified Actuary with good capital/reporting experience to complement their ambitious growth plans. Unrivalled career progression.

Reporting Actuary — Surrey
Richard Howard — £55,000 - £70,000 + Bonus + Benefits

Excellent opportunity for a newly qualified Actuary to join this leading life insurer in the South East. Managing a small team you will be responsible for the delivery of MCEV and IFRS. Looking for experience of financial reporting within a life company.

Contracts - Life

Project Actuary — South West
Rob Bentham — Up to £900/day

Our client is looking for a Reporting Actuary to join one of their project teams. The role will focus around improving the reporting process in addition to embedding any Solvency II changes into that process. Strong communication skills are essential.

Reporting Actuaries — Midlands
Rob Bentham — Up to £750/day

Our client is looking for three actuaries (one qualified, two part qualified) to join their reporting team. You will focus on a project concerned with new disclosures for the business. Strong financial reporting background is essential in addition to high Excel competency.

General Insurance - UK

Paul Francis	0207 649 9469
Rick Davis	0207 649 9353
Sarah Robins	0207 310 8552
Ben Pitt	0207 310 8719
Rachel Kelly	0207 310 8579

Contracts - GI - UK

Stewart Cherry	0207 310 8651

Contracts - Life - UK

Rob Bentham	0207 649 9351

Life Insurance - UK

Clare Nash	0207 649 9350
David Parker	0207 310 8649
Richard Howard	0207 649 9356

Please contact one of the team for further information on any of the opportunities above or visit www.ojassociates.com/jobs

Oliver James Associates

Europe

Reinsurance Pricing Actuaries — Zurich, Switzerland
Audrey Dresen — CHF120,000 - CHF170,000

Switzerland offers several exciting opportunities for experienced, (part/post) qualified Reinsurance Pricing Actuaries for specialty lines and in P&C Treaty. We work with both well-established, yet still growing firms along with a number of start-ups.

Reserving and Pricing Actuary — Dublin, Ireland
Patrick McMahon — €75,000 - €100,000

Excellent opportunity with a small but dynamic and growing general insurance company looking to recruit a qualified Actuary. Although initially working on Reserving and Solvency II you will be expected to develop and manage a new actuarial pricing team.

Valuation Actuary, Reinsurance — Paris, France
Emérique Opou — €55,000 - €65,000 + Bonus

You will join an international team who specialise in life reinsurance. You will mainly be involved in the quantitative side of Solvency II, namely MCEV Calculation, Economic Capital, and Modelling. Experience of Prophet or MoSes would be ideal.

International Annuities Manager — London/Surrey/Hilversum
Niels van Nieuwkerk — £70,000 - £110,000 + Benefits

Our client is seeking to recruit an Annuities Manager to further develop the annuity activities within the Dutch market. The Annuities Manager is responsible for the strategy and implementation. You will work both in the UK and Netherlands. Dutch language skills required.

Marketing Actuary — Cologne
Emina Biscevic — €65,000 - €75,000

Reinsurer is currently seeking a Marketing Actuary to join their life actuarial department in Germany. You will mainly be responsible for the pricing of daily business of selected countries.

Modelling Consultant — Holland
Helger Wiese — €100 - €125/hour

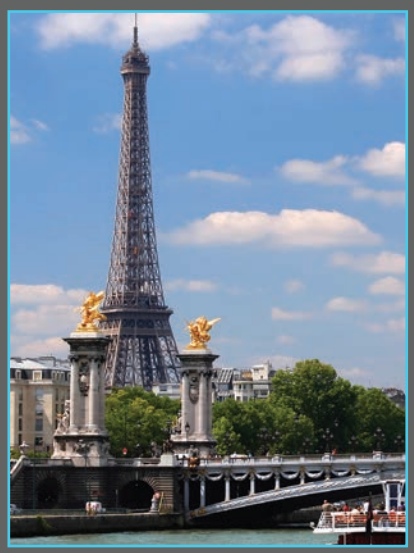
Modelling specialists needed for Dutch insurer. Dutch language skills preferred. Applicants need to be developing experts within either MoSes, Prophet or IGLOO. Please contact me directaly for more information

French Actuaries and Reinsurance

By Emérique Opou

The Reinsurance Industry in France

The reinsurance industry in France is dominated by the non-life market (about 75%); however, key reinsurers with operations in France are looking to close the gap between life and non-life reinsurance in order to establish a better balance between the two. In the coming years we should witness a higher number of hires on the life side, both on 'classic' actuarial roles (pricing & reserving) and on the capital/corporate side. These changes are already taking place within the major reinsurers.



On a more global scale, the reinsurance industry is becoming increasingly attractive and France is no exception to this trend. The French actuarial population is more and more open to international opportunities and the reinsurance industry is known to offer great exposure to international markets (with international transactions etc.), therefore there is a greater demand from actuaries who are eager to enter this very exciting industry.

Access to international opportunities is not the only factor that makes reinsurance attractive. More competitive salaries as well as the more commercial nature of the sector make reinsurance particularly interesting and dynamic.

The Economic environment

Despite its popularity, the economic downturn in France and the postponement of Solvency II have impacted the reinsurance industry - this slightly altered the face of recruitment in the sector. However, we are still witnessing a good number of actuarial recruitments as strong actuaries remain a rare and necessary commodity.

Skills needed

In the main, the sought-after profiles at this stage are 'classic' actuaries with a particular emphasis on life (re)insurance. As for Solvency II hires, companies are awaiting further notice from the regulators before deciding on the next stage.

Finally, a key skill that companies are looking for is not a technical one but a 'soft' skill: communication. As the reinsurance industry involves working with various departments, outstanding communication skills are needed by actuaries in order to simplify technical language to something that can be understood by non-actuaries. Some people may say this is as important as actuarial knowledge.

If you would like a more general discussion about the French actuarial market please contact:
Emérique Opou | +33 1 76 77 46 30

Europe

Benjamin Moses	+44 207 310 8793	Laurence Baken	+32 24 012 249	Patrick McMahon	+353 1 685 2413
Helger Wiese	+31 20 262 0280	Manuel Lovell	+49 8922 061 003	Niels van Nieuwkerk	+31 20 716 8327
Emina Biscevic	+49 89 3803 8965	Emérique Opou	+33 1 76 77 46 30	Julien Fabius	+31 20 716 8450
Audrey Dresen	+41 43 508 0444				

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On a more global scale, the reinsurance industry is becoming increasingly attractive and France is no exception to this trend. The French actuarial population is more and more open to international opportunities and the reinsurance industry is known to offer great exposure to international markets (with international transactions etc.), therefore there is a greater demand from actuaries who are eager to enter this very exciting industry.

Access to international opportunities is not the only factor that makes reinsurance attractive. More competitive salaries as well as the more commercial nature of the sector make reinsurance particularly interesting and dynamic.

The Economic environment

Despite its popularity, the economic downturn in France and the postponement of Solvency II have impacted the reinsurance industry - this slightly altered the face of recruitment in the sector. However, we are still witnessing a good number of actuarial recruitments as strong actuaries remain a rare and necessary commodity.

Skills needed

In the main, the sought-after profiles at this stage are 'classic' actuaries with a particular emphasis on life (re)insurance. As for Solvency II hires, companies are awaiting further notice from the regulators before deciding on the next stage.

Finally, a key skill that companies are looking for is not a technical one but a 'soft' skill: communication. As the reinsurance industry involves working with various departments, outstanding communication skills are needed by actuaries in order to simplify technical language to something that can be understood by non-actuaries. Some people may say this is as important as actuarial knowledge.

If you would like a more general discussion about the French actuarial market please contact:
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Please contact one of the team for further information on any of the opportunities above or visit www.ojassociates.com/jobs

the ARC

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A fresh approach

Capital Actuary — General Insurance
London — Circa £80K

This established Lloyd's business is looking for a nearly or newly qualified actuary for a new capital position. The client is looking for a self motivated individual with strong technical knowledge in capital modelling and Solvency II and with good communication skills. For the right candidate this role has plenty of scope to take on responsibility and for upwards career progression. Igloo knowledge would be useful. **Ref: ARC26227**

Reinsurance Actuary — General Insurance
London — £Competitive

This international reinsurance business is looking for a qualified actuary with experience of reinsurance pricing or reserving to work in their London office. The role will work across all property and casualty lines and work closely with underwriters and the management team. A proactive individual is required who can support the Chief Actuary in developing and improving the pricing and reserving processes within the business. Good IT skills required particularly Excel and VBA. **Ref: ARC26228**

Consultant — Life
London based/UK — to £100K

This is an excellent opportunity for a qualified actuary to take a broader role in a global consultancy working within an insurance consultancy team. This role is suited to a candidate who has a wider experience base than just traditional actuarial work and who can demonstrate excellent client facing skills and understanding of current industry challenges and a desire to work with insurance clients in the key areas of financial process transformation and performance analytics. **Ref: ARC26230**

Actuarial Analyst — Move into GI
London — £Attractive

This well established London Market player has an excellent opportunity for a student making good progress with the actuarial exams. The successful candidate will be involved in reserving across multiple lines of business. Strong candidates from other sectors will be considered provided they are committed to moving into non life and have good technical and communication skills gained in either an insurer or consultancy environment. Please contact Chris Cannon for more details. **Ref: ARC26229**

Call us anytime including evenings and weekends on 020 7717 9705 or email *enquiries@the-arc.co.uk*

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